



SLEEP QUALITY AND ASSOCIATED FACTORS IN WOMEN

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Abstract: Sleep, which has an important role in a healthy life, is a vital need. This vital need has an important place in all stages of a woman's life, including infancy, childhood, adulthood, and old age. This study aimed to determine the sleep quality of women aged 18-49 and related factors. The study, which was carried out as a descriptive and correlational research, was completed with the participation of 215 women. "Questionnaire Form" and "Pittsburgh Sleep Quality Index" were used to collect data. Data were analyzed with SPSS program. Mean age of women was 35±7.45 and the majority (74.4%) was university and higher graduate. Mean score of Pittsburgh Sleep Quality Index was 6.20±3.29. There was a significant relationship between short sleep during the day, sleeping with music or television on, having the habit of eating at night, watching television or using telephone or computer actively before sleep and sleep quality. Sleep quality of women was found to be bad in our study. It was determined that short sleep during the day, sleeping with music or television on, having the habit of eating at night, watching television or using telephone or computer actively before sleep affect sleep quality of women. It is recommended to prepare programs to improve sleep quality which is an important factor affecting female health and train women on this issue.

Keywords: Sleep, Sleep quality, Pittsburgh sleep quality, Women

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1. Introduction

Sleep is defined as "a temporary loss of consciousness that can be ended with any stimulus, where brain activity is minimal, and the connection between the living organism and its environment is severed by its own choice" (Saygın and Özgüner, 2020). It is one of the most fundamental biological activities, and it constitutes a third of human life. Sleep, which has an important role in a healthy life, is a vital need (Ulusoy, 2020). This vital need has an important place in all stages of a woman's life, including infancy, childhood, adulthood, and old age. In all stages of a woman's life, changes in the levels of many hormones, especially estrogen and progesterone, affect her sleep patterns and quality (Santur and Özşahin, 2021). In addition to hormonal changes, in the literature, several physical, psychological, and environmental factors, such as age, sex, chronic diseases, medication use, physical activity, lifestyle, work life, dietary habits, alcohol, nicotine, and caffeine intake, social life, income status, stress, and emotional status, have been reported to affect sleep quality (Şahin et al., 2020; Arpınar, 2020; Kolcu et al., 2021; Santur and Özşahin 2021). It has also been reported that the COVID-19 pandemic affects the sleep patterns and quality of individuals by creating significant levels of stress and anxiety (Pieh et al., 2020; Şahin et al., 2020). In this context, this study was conducted to determine the sleep quality levels of married women aged 18-45 and associated factors.

2. Material and Methods

2.1. Study Design

This study was carried out with a descriptive and correlational design.

2.2. Sample

The population of the study consisted of married women aged 18-49. Considering the number of independent variables to be analyzed in the study, based on a moderate expected effect size of 0.15, a power of 85%, and a significance level of 0.05, the minimum required sample size was calculated as 176. Considering potential data losses, with a 20% increase, it was decided to include at least 211 participants in the study (Arı and Önder, 2013). The study was completed with 215 participants. Women who did not have access to the internet, those who were pregnant, those who were breastfeeding, and those who were in menopause were excluded from the sample.

2.3. Measurement

The data for the study were collected using a "Personal Information Form" and the Pittsburgh Sleep Quality Index (PSQI)". The Personal Information Form, which was created by the researcher, included 20 questions on the sociodemographic and sleep-related characteristics of the participants. PSQI was developed by Buysse et al. (1989). It consists of 24 items, and the minimum and maximum PSQI scores are 0-21. A score of lower than 5 indicates "good" sleep quality, whereas a score of 5 or



higher indicates “poor” sleep quality (Buysse et al., 1989). Ağargün et al. (1996) tested the validity and reliability of the scale in Turkish and reported its Cronbach’s alpha coefficient as 0.80. In this study, the Cronbach’s alpha coefficient of PSQI was found as 0.70.

2.4. Data Collection

The data were collected between 18 July 2022 and 10 August 2022 by sharing the link to a web-based form created on the Google Forms platform with women via social media and communication tools such as Instagram, Facebook, and WhatsApp. Standardizations were made on the Google Forms document to allow the participants to respond only once.

2.5. Statistical Analysis

The collected data were analyzed in the computer environment using the SPSS 22 (Statistical Package for the Social Sciences) program. The descriptive statistics of the data are presented as frequency, percentage, mean, and standard deviation values. The normality of the distribution of the numeric data was tested using Skewness and Kurtosis values, and it was found that

these data were normally distributed (0.76 and 0.44, respectively). In the comparisons of the PSQI scores of the participants based on their independent variables, based on the number of samples, independent-samples t-test and Mann-Whitney U test (n<30) were used to compare two groups, and one-way analysis of variance (ANOVA) (post hoc Tukey’s HSD) and Kruskal-Wallis H test (n<30) were used to compare three or more groups. The level of statistical significance was taken as P<0.05.

3. Results

The mean age of the participants was 35.0±7.45, and most (74.4%) had university or higher degrees (Table 1). Other sociodemographic characteristics of the participants are presented in Table 1. Among the sleep-related characteristics of the participants, the three most frequently reported options were the usage of television, phone, or computer before sleeping (89.8%), the usage of thick curtains (48.4%), and drinking tea before sleeping (45.6%, Table 2).

Table 1. Sociodemographic characteristics of women

| Independent Variables (n=215) | $\bar{x} \pm SD$ | Min-Max |
|-------------------------------|------------------|---------|
| Age | 35.0±7.45 | 19-45 |
| | n | % |
| Educational Status | | |
| Literate/elementary school | 16 | 7.5 |
| High School | 39 | 18.1 |
| University or higher degrees | 160 | 74.4 |
| Employment Status | | |
| Working | 117 | 54.4 |
| Housewife | 98 | 45.6 |
| Partner’s Educational Status | | |
| Literate/elementary school | 12 | 5.6 |
| High School | 53 | 24.7 |
| University or higher degrees | 150 | 69.7 |
| Partner’s Employment Status | | |
| Working | 200 | 93.0 |
| Not Working | 15 | 7.0 |
| Family Type | | |
| Nuclear family | 203 | 94.4 |
| Extended family | 12 | 5.6 |
| Socio-economic Status | | |
| Below Minimum Wage | 27 | 12.6 |
| Above Minimum Wage | 188 | 87.4 |
| Number of Children | | |
| None | 36 | 16.7 |
| 1 | 63 | 29.3 |
| ≥ 2 | 116 | 54.0 |

Table 2. Sleep-related characteristics of women

| Independent Variables (n=215) | n | % |
|--|-----|------|
| Smoking | | |
| Yes | 44 | 20.5 |
| No | 171 | 79.5 |
| Alcohol Use | | |
| Yes | 17 | 7.9 |
| No | 198 | 92.1 |
| Drinking Coffee Before Sleeping | | |
| Yes | 40 | 18.6 |
| No | 175 | 81.4 |
| Drinking Tea Before Sleep | | |
| Yes | 98 | 45.6 |
| No | 117 | 54.4 |
| Regular Exercise | | |
| Yes | 33 | 15.3 |
| No | 182 | 84.7 |
| Having short naps during the day | | |
| Yes | 85 | 39.5 |
| No | 130 | 60.5 |
| Usage of television, phone, or computer before sleeping | | |
| Yes | 193 | 89.8 |
| No | 22 | 10.2 |
| Listening to music/TV on while sleeping | | |
| Yes | 38 | 17.7 |
| No | 177 | 82.3 |
| Sleep With The Light On | | |
| Yes | 8 | 3.7 |
| No | 207 | 96.3 |
| Using Thick Curtains | | |
| Yes | 104 | 48.4 |
| No | 111 | 51.6 |
| Eating at Night | | |
| Yes | 48 | 22.3 |
| No | 167 | 77.7 |

The mean PSQI score of the participants was 6.20±3.29. No significant relationship was found between the sociodemographic characteristics of the participants and their sleep quality levels (Table 3).

Among their sleep-related characteristics, having short naps during the day (p=0.023), sleeping while music, the

television, is on (p=0.049), having the habit of eating at night (p=0.007), and the usage of television, phone, or computer before sleeping (p=0.018) were found to be significantly related to the sleep quality levels of the participants (Table 4).

Table 3. Comparison of the mean PSQI scores of the women based on their sociodemographic characteristics

| Independent Variables (n=215) | n | PSQI ($\bar{x} \pm SD$) | test | P |
|-------------------------------------|-----|---------------------------|------------|-------|
| Age | | | | |
| 17-25 | 27 | 7.19±3.32 | KW= 4.019 | 0.134 |
| 26-35 | 87 | 6.16±2.90 | | |
| 36 ≥ | 101 | 5.98±3.57 | | |
| Educational Status | | | | |
| Literate/elementary school | 16 | 5.69±3.80 | KW= 3.117 | 0.374 |
| High School | 39 | 6.92±3.16 | | |
| University or higher degrees | 160 | 6.10±3.25 | | |
| Employment Status | | | | |
| Working | 117 | 5.92±2.98 | t=- 1.371 | 0.172 |
| Housewife | 98 | 6.54±3.62 | | |
| Partner's Educational Status | | | | |
| Literate/elementary school | 12 | 6.33±3.82 | KW= 4.106 | 0.250 |
| High School | 39 | 6.36±3.55 | | |
| University or higher degrees | 150 | 5.95±3.05 | | |
| Partner's Employment Status | | | | |
| Working | 200 | 6.20±3.27 | U= 1476.00 | 0.917 |
| Not Working | 15 | 6.33±3.69 | | |
| Family Type | | | | |
| Nuclear family | 203 | 6.18±3.26 | U= 1174.50 | 0.835 |
| Extended family | 12 | 6.67±3.19 | | |
| Socio-economic Status | | | | |
| Below Minimum Wage | 27 | 6.26±3.13 | U= 2466,50 | 0,812 |
| Above Minimum Wage | 188 | 6.20±3.32 | | |
| Number of Children | | | | |
| None | 36 | 5.97±2.97 | F= 0.354 | 0.703 |
| 1 | 63 | 6.02±2.76 | | |
| ≥ 2 | 116 | 6.38±3.65 | | |

t= independent-samples t-test, df= 213; KW= Kruskal Wallis test, F= analysis of variance in independent groups, between groups/within groups, df= 2/212/214.

Table 4. Comparison of the mean PSQI scores of the women based on their sleep-related characteristics

| Independent Variables (n=215) | n | PSQI ($\bar{x} \pm SD$) | test | P |
|---|-----|---------------------------|------------|-------|
| Smoking | | | | |
| Yes | 44 | 6.48±3.49 | t= 0.614 | 0.540 |
| No | 171 | 6.13±3.25 | | |
| Alcohol Use | | | | |
| Yes | 17 | 5.12±2.36 | U= 1345.50 | 0.168 |
| No | 198 | 6.30±3.35 | | |
| Drinking Coffee Before Sleeping | | | | |
| Yes | 40 | 6.28±3.08 | t= 0.149 | 0.881 |
| No | 175 | 6.19±3.35 | | |
| Drinking Tea Before Sleep | | | | |
| Yes | 98 | 6.38±3.02 | t= 0.703 | 0.483 |
| No | 117 | 6.06±3.51 | | |
| Regular Exercise | | | | |
| Yes | 33 | 5.88±2.97 | t=- 0.616 | 0.538 |
| No | 182 | 6.26±3.35 | | |
| Having short naps during the day | | | | |
| Yes | 85 | 6.84±3.74 | t= 2,291 | 0.023 |
| No | 130 | 5.79±2.91 | | |
| Usage of television, phone, or computer before sleeping | | | | |
| Yes | 193 | 6.35±3.26 | U= 1769.5 | 0.018 |
| No | 22 | 4.95±3.40 | | |
| Listening to music/TV on while sleeping | | | | |
| Yes | 38 | 7.16±3.33 | t= 1.978 | 0.049 |
| No | 177 | 6.00±3.26 | | |
| Sleep With The Light On | | | | |
| Yes | 8 | 6.75±3.49 | U= 751.5 | 0.656 |
| No | 207 | 6.18±3.29 | | |
| Using Thick Curtains | | | | |
| Yes | 104 | 6.39±3.24 | t= 0.816 | 0.416 |
| No | 111 | 6.03±3.34 | | |
| Eating at Night | | | | |
| Yes | 48 | 7.33±3.50 | t= 2.732 | 0.007 |
| No | 167 | 5.88±3.17 | | |

t= independent-samples t-test, df= 213, U= Mann-Whitney U test.

4. Discussion

Sleep has a significant place in the continuation of a woman's life in a healthy manner. Quality sleep increases the quality of life of the individual by helping them protect their mental and physical health. In this study, which was conducted to determine the sleep quality levels of married women aged 18-45 and associated factors, it was determined that the participants had poor sleep quality in general.

In this study, the participants were found to have poor sleep quality. Similarly, women were determined to have poor sleep quality in the studies conducted by Kabeoğlu and Gül (2022), Doğan and Çaltekin (2021), Esgin and Özçelik (2022), and Tatlı and Köşeler Beyaz (2022). It should be noted that these studies that have identified poor sleep quality among women were all conducted during the COVID-19 pandemic.

No statistically significant relationship was found between the sociodemographic characteristics of the women who participated in this study and their sleep

quality levels.

Hinz et al. (2017) reported a significant relationship between the sleep quality levels of women aged 39 or younger and their socioeconomic and occupational statuses. Pattanaik et al. (2019) stated that the sleep quality of women was associated with their age, and those at the ages between 15 and 25 had poorer sleep quality than those in other age groups. Kim et al. (2021) reported higher rates of poor sleep quality among women with low education levels, as well as those with low income.

In this study, among their sleep-related characteristics, having short naps during the day, sleeping while music, the television, etc. is on, having the habit of eating at night, and the usage of television, phone, or computer before sleeping were found to be significantly associated with the sleep quality levels of the participants. Similar to the result of this study, previous studies revealed poorer sleep quality among individuals who took naps during the day compared to those who did not take naps (Zhou

et al., 2020; Cui et al., 2021). In a study conducted in Australia, a significant relationship was found between night eating syndrome and sleep quality (Yeh et al., 2014). In another study, it was reported that night eating syndrome disrupted sleep quality (Bektaş et al., 2016). Deniz (2016) identified significant relationships between night eating syndrome and sleep disorders, subjective sleep quality, and total sleep quality scores. Exelmans et al. (2016) stated that individuals who used mobile phones at night despite having the lights of the room turned off had difficulty falling asleep, and they had poorer sleep quality. Unlike the result in this study, Pala (2021) reported that although individuals using electronic devices such as mobile phones, computers, and television actively before going to sleep had poor sleep quality, the relationship between the usage of these devices before going to sleep and sleep quality was not statistically significant. It was thought that these variables could be behaviors that were formed or made more frequent during the COVID-19 pandemic period as a consequence of pandemic restrictions or circumstances involving working from home.

It was observed that smoking, alcohol consumption, drinking coffee or tea before sleeping, regular exercise habits, using thick curtains, or sleeping while leaving the lights on did not affect the sleep quality of the participants of this study significantly. As opposed to the result in this study, Guerra-Balic et al. (2023) reported that during the quarantine measures brought about by the COVID-19 pandemic, individuals with low physical activity, especially women, were at risk of insomnia. In other studies, significant relationships have been identified between activity levels and sleep quality (Akova and Koçoğlu, 2018), between sleep quality and the consumption of caffeinated drinks, ayran, coffee without cream, and stimulating drinks (Doğan and Çaltekin, 2021), and between sleep quality and variables such as smoking and low physical activity (Özdemir et al., 2018; Tatlı and Köşeler Beyaz, 2022).

5. Conclusion

The results of this study revealed that the married women aged 18-49 who participated in the study had poor sleep quality in general, and having short naps during the day, sleeping while music, the television, etc. is on, having the habit of eating at night, and the usage of television, phone, or computer before sleeping were significantly related to their sleep quality levels. Considering that factors associated with poor sleep quality are habits that have been gained due to the increased amount of time spent at home during the COVID-19 pandemic period, it can be recommended to organize programs towards improving sleep quality and conduct more comprehensive studies on this topic.

Limitations

This study was a web-based study, and the inclusion of only participants with internet access was a limitation.

Another limitation was that because this was a descriptive and correlational study, it reports factors that affect sleep quality, but it does not infer causality relationships between these variables.

Author Contributions

The percentage of the author(s) contributions is present below. All authors reviewed and approved final version of the manuscript.

| | H.A. | Ö.S. |
|-----|------|------|
| C | 50 | 50 |
| D | 50 | 50 |
| S | 50 | 50 |
| DCP | 50 | 50 |
| DAI | 50 | 50 |
| L | 50 | 50 |
| W | 50 | 50 |
| CR | 50 | 50 |
| SR | 50 | 50 |
| PM | 50 | 50 |
| FA | 50 | 50 |

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management, FA= funding acquisition.

Conflict of Interest

The authors declared that there is no conflict of interest.

Ethical Approval/Informed Consent

The authors confirm that the ethical policies of the journal, as noted on the journal's author guidelines page, have been adhered to. Before starting the study, approval was obtained from the Health Sciences Scientific Research Ethics Committee of Necmettin Erbakan University (06.07.2022/24). The women who were to be included in the study read the informed consent form before responding to the web-based data collection forms. Those who answered "yes" to the statement "I have been informed about the study, and I agree to participate" were allowed to respond to the questions.

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