

Original Article

The Relationship Between Menopausal Complaints and Sleep Quality

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Abstract

Objective: The aim of this study is to assess the relationship between the menopausal complaints and sleep quality of the menopausal women.

Material and Methods: The population of the study was composed of the women who were living in the city center of Bingol province, in the age range of 40-65 years and went through menopause. The data were collected from the participants who applied to the Family Health Centers. Individual Information Form, Menopause Rating Scale (MRS) and Pittsburgh Sleep Quality Index (PSQI) were used as the data collection tools.

Results: The total scores of the participants' menopausal symptoms were below the average level but their PSQI scores were high and for this reason, sleep quality indices were low. In this study, MRS mean score was 17.46 ± 5.29 (min-max: 6 – 35) and PSQI mean score was 9.17 ± 2.06 (min-max: 6 – 18).

Conclusions: All the participants had poor sleep quality. In the study it was determined that especially all the menopausal the symptoms which are experienced in this period and cannot be brought under control impair women had sleep problems.

Key words: Menopause, menopausal complaints, sleep, sleep quality.

Introduction

The word "menopause " derives from two [ancient] Greek morphemes: "menos" meaning month and "pausos" meaning to stop". It expresses the end of the monthly menstrual cycle (Aydemir & Dagdeviren, 2007). WHO defines menopause as permanent ending of menstruation as a result of losing ovarian activity. The menopausal period is composed of the premenopausal, menopause, and postmenopausal periods. The period in which the first symptoms are seen is called as the premenopausal period, the period in which the last menstrual bleeding is observed is called as the menopause period and the period which starts one year after the menopause and continues till the

start of old age is called as the postmenopausal period (Sherman, 2005). Hormonal changes mainly decline in estrogen levels, and naturally the age-related problems have an important place in the health monitoring of women in the menopausal period. The menopausal period includes the complaints such as hot flush, night sweating, vaginal dryness, skin drying, psychological and mental disorders, and somatic disorders (Hacer Karanisoglu, 2012). The recent developments have revealed that only medical treatment is not enough for menopausal complaints and a multidisciplinary health care is required. Menopause, which is natural and physiological, is not a disease. However, due to possible risks and pathologies, it requires intense

observation, support, care, treatment, and health training (Sahin & Kharbouch, 2007). One of the main problems experienced in the menopausal periods together with increasing age is the sleep problems and impaired sleep quality. The studies have revealed that sleep disorders are common in the menopausal period (50%). In this period, sleeplessness is mostly caused by vasomotor changes. Sleeping problems are observed more in the postmenopausal period compared to the premenopausal and perimenopausal period (Sun et al., 2014). Sleeplessness in the menopausal period is caused mostly by hot flush and night sweating experienced as a result of hormonal changes. The decline in estrogen secretion causes REM period to decrease in number and duration as well as the decrease of both estrogen and progesterone hormone cause sleep apnea and snoring (Ozgur et al., 2010). The perception of women stating that the menopausal period will be stressful causes medical and psychosocial complaints to increase in this period (Sahin et al., 2011). Within this context, it is very important to figure out the relationship between menopausal complaints and sleep quality.

The aim of this study is to assess the relationship between the menopausal complaints and sleep quality of the menopausal women.

Material and method

Type of The Study: The study was conducted in quantitative design, general screening model and cross-sectional type.

Population and Sample of The Study: The population of the study was composed of the women who were living in the city center of Bingöl province, in the age range of 40-65 years and went through menopause. The data were collected from the participants who applied to the Family Health Centers in the city center between 03.02.2020 and 30.03.2020, were voluntary to participate in the study, and met the inclusion criteria. Simple random method was used for data collection. Since the government of the Republic of Turkey advised the public to minimize face-to-face interaction and isolate themselves at home, the participants were invited to the study electronically. The participants filled out the questionnaires through the online survey platform. A written consent was received from the Ministry of Health Scientific Research Platform before the study. The participants were informed with the information text in data collection form in accordance with the Declaration of Helsinki

criteria and the data were collected from the "voluntary participants who stated that they had no psychiatric disease diagnosed by a physician".

Data Collection Tools

Individual Information Form, Menopause Rating Scale (MRS) and Pittsburgh Sleep Quality Index (PSQI) were used as the data collection tools.

Individual Information Form (includes independent variables): This form aims to determine some characteristics of the participants. It includes some questions on age, gender, educational level, profession, habits, and presence of chronic disease.

MRS: Menopause Rating Scale (MRS) was developed by Schneider et al., (Schneider, Heinemann, Rosemeier, Potthoff, & Behre, 2000) to measure the severity of the menopausal symptoms and was adapted to Turkish by Gürkan (Gürkan, 2005) in 2005 in Turkey. The likert type scale including a total of 11 items on the menopausal complaints has options of "0= None", "1= Slight", "2= Average", "3= Severe", and "4= Very severe" for each item. Total score of the scale is calculated based on the points given for each item. The scale is composed of three subscales: Somatic Complaints (SC), Psychological Complaints (PC), and Urogenital Complaints (UC). Minimum and maximum scores of the scale are 0 and 44, respectively. High total score of the scale indicates the increased severity in the complaints experienced. Cronbach's Alpha coefficient is 0.84 for overall scale and 0.65 for the somatic symptoms subscale, 0.79 for the psychological symptoms subscale and 0.72 for the urogenital complaints subscale (Gürkan, 2005). In this study, Cronbach's Alpha coefficient was 0.79 for overall scale.

PSQI Buysse et al., developed PSQI in 1989 (Buysse et al., 1991). Ağargün et al., conducted the Turkish reliability and validity study of the index. In its use for diagnosis, the sensitivity and specificity of the index are 89.6% and 86.5%, respectively. PSQI is a self-report screening and assessment test providing information about the type and severity of sleep quality disorders and the problems in sleep pattern. PSQI gives the opportunity to make a reliable distinction between those with a good sleep quality and those with a poor sleep quality. 18 questions in the index allow to determine the parameters affecting sleep quality; sleep duration, sleep latency, and frequency and severity of the sleep problems. The index has been grouped as 7 components (subjective sleep quality, sleep latency, sleep

duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction) and the scores taken in the relevant questions are taken into consideration for calculating the scores of the components. Total score of PSQI varies between 0 and 21 points. A total score of > 5 points indicates poor sleep quality. In other words, the decrease in the total score of PSQI indicates an enhanced sleep quality and the increase in the total score indicates an impaired sleep quality (Ağargün, Kara, & Anlar, 1996). In the study by Ağargün et al., the Cronbach's Alpha internal consistency coefficient was reported to be 0.80. In this study, Cronbach's Alpha coefficient for the scale total score was 0.87. In the literature, if Cronbach's Alpha coefficient is $0.00 \leq \alpha < 0.40$, the scale is accepted to be unreliable; if it is $0.40 \leq \alpha < 0.60$, the scale is accepted to be lowly reliable; if it is $0.60 \leq \alpha < 0.80$, the scale is accepted to be quite reliable, and if it is $0.80 \leq \alpha < 1.00$, the scale is accepted to be highly reliable (Kalayci, 2005). For this reason, this study was accepted to be reliable in terms of MRS and highly reliable in terms of PSQI. Kaiser-Meyer-Olkin (KMO) coefficient was also taken into consideration for the suitability of the data and adequacy of the sample size. A KMO value of ≥ 0.80 and over is accepted as perfect, a value between 0.70 - 0.80 is accepted as good, a value between 0.60 - 0.70 is accepted as moderate, and a value between 0.50 - 0.60 is accepted as bad and a value of < 0.50 is unacceptable (Durmuş, Yurtkoru, & Çinko, 2013). In this study, KMO value for MRS was found to be 0.79 (good).

Data Assessment: The study data were assessed by SPSS-22 software and error checks, tables and statistical analyses were performed. The number and percentage values were presented in the statistical assessment. For the compatibility to normal distribution, histogram drawings were made, skewness and kurtosis values were examined, and Kolmogorov-Smirnov analyses were made. Independent Samples t test, One Way Anova test, Mann Whitney U test and Kruskal Wallis test were performed between some situations and characteristics and MRS and PSQI total and subscale scores. To determine the groups causing the difference, Mann Whitney U and Duncan tests were performed and the value of $p < 0.05$ was accepted as the statistical significance level.

Results

It was determined in the study that the average age of the participant was 54.38 ± 4.97 (min-max: 42-

65). 84.9% of the participants stated that they had social security and 82.5% stated that they were married. 65.1% of the participants were illiterate, 25.9% were primary school graduates, 5.4% were secondary school graduates, 2.4% were high school graduates and 1.2% had undergraduate and higher education. 89.2% of the participants stated that they were housewives and 5.4% were employed, and the rest ones were retired (5.4%).

Table 1 shows the fertility and menopause period characteristics of the participants. 81.9% of the participants stated that they were informed about the menopause period and 30.7% stated that they had treatment due to menopause symptoms. 33.7% of the participants stated that they can perform salat continuously as the menstruation, in which they cannot perform salat based on Islam, is ended during menopause and 47% of the participants stated that their menstrual pain was over and the rest of the participants (18.6%) stated many other things but they didn't give details. 78.9% of the participants stated that menopausal symptoms affected their lives negatively and explained those symptoms as hot flush (49.6%), intolerance (16.0%), fatigue (12.2%) and others (22.1%). Table 2 shows the distributions of the MRS and PSQI scores of the participants. It was determined that the total scores of the participants' menopausal symptoms were below the average level but their PSQI scores were high and for this reason, sleep quality indices were low. It was found that the average BMI of the participants was 27.30 ± 3.60 (min-max: 20.32 – 41.33). 24.1% of the participants had normal weight, 54.8% were overweight, 17.5% were grade 1 obese, 3.0% were grade 2 obese and the rest (0.6%) were grade 3 obese, that is, morbid obese. In this study, MRS mean score was 17.46 ± 5.29 (min-max: 6 – 35) and PSQI mean score was 9.17 ± 2.06 (min-max: 6 – 18). All the participants had poor sleep quality. Table 3 shows only the variables causing difference, among the distributions of some characteristics of the participants based on MRS and PSQI scores. It was observed that variables of age, marital status, education level, occupation, income level perception, status of having no chronic disease, status of doing exercises, and the date of last menstruation did not cause a difference in none of the scales. As seen in Table 3, the variables causing difference in case of experiencing menopausal symptoms more severely were found to be those who were smoker ($p = 0.001$), did not get information on menopause period ($p = 0.001$), thought that menopause did not

affect their lives ($p = 0.003$), and thought that menopause period changed their lives negatively ($p = 0.009$). and not having received treatment for menopausal symptoms ($p=0.044$).

The difference in those with poor sleep quality was due to not being informed on the menopausal symptoms ($p=0.046$), being informed by their

circle and nurses/midwives instead of physician ($p=0.006$)

Table 4 shows the relationship between age, parity, BMI values, MRS and PSQI scores. As is seen, a very weak positive correlation was found between MRS and PSQI.

Table 1. The fertility and menopause characteristics of the participants (N=166)

| Characteristics | | n | %* |
|--|---------------------------------------|-----|------|
| Number of pregnancies Mean \pm SD (Min:-Max); 7.40 \pm 2.95 (0-17) | | | |
| Number of births Mean \pm SD (Min:-Max); 6.00 \pm 2.27 (0-13) | | | |
| Number of Miscarriages Mean \pm SD (Min:-Max); 1.11 \pm 1.47 (0-8) | | | |
| Number of abortions Mean \pm SD (Min:-Max); 0.29 \pm 0.54 (0-3) | | | |
| Being informed on the menopausal period | Yes, she was informed | 136 | 81.9 |
| | No, she wasn't informed | 30 | 18.1 |
| Information source on menopause (n= 137) | Social circle (friend, neighbor etc.) | 77 | 56.2 |
| | Midwife, nurse | 23 | 16.8 |
| | Physician | 32 | 23.4 |
| | Mass media | 5 | 3.6 |
| The time of last menstruation | Less than one year | 11 | 6.6 |
| | 1-3 years ago | 19 | 11.4 |
| | 4-6 years ago | 25 | 15.1 |
| | 7-9 years ago | 38 | 22.9 |
| | More than 10 years | 73 | 44.0 |
| What did she do to cope with the menopausal symptoms? (n= 50) | HRT | 36 | 72.0 |
| | Alternative medicine | 9 | 18.0 |
| | HRT + alternative medicine | 5 | 10.0 |
| What did she understand from the word "menopause"? | Climacterium | 109 | 65.7 |
| | Not being able to give birth | 28 | 16.9 |
| | Getting old | 27 | 16.3 |
| | End of sexuality | 2 | 1.2 |
| Has the menopausal period affected your life? | Yes | 156 | 94.0 |
| | No | 10 | 6.0 |
| Has the menopause had any positive effect on your life? | Yes | 85 | 51.2 |
| | No | 81 | 48.8 |
| Has the menopause had any negative effect on your life? | Yes | 131 | 78.9 |
| | No | 35 | 21.1 |

*: Row percentage was taken. **HRT:** Hormone Replacement Therapy

Table 2. The distributions of MRS and PSQI scores of the participants (N= 166)

| Scales and their subscales | Mean \pm SD | Min – Max | 95% CI |
|--|------------------|-----------|---------------|
| Menopause Rating Scale | 17.46 \pm 5.29 | 6 – 35 | 16.65 – 18.27 |
| Somatic complaints | 6.41 \pm 2.40 | 2 – 15 | 6.04 – 6.78 |
| Psychological complaints | 7.26 \pm 2.68 | 0 – 14 | 6.85 – 7.67 |
| Urogenital complaints | 3.48 \pm 2.03 | 0 – 9 | 3.47 – 4.09 |
| Pittsburgh Sleep Quality Index | 9.17 \pm 2.06 | 6 – 18 | 8.85 – 9.49 |
| Subjective sleep quality (Component 1) | 1.00 \pm 0.00 | 1 – 1 | 0 – 0 |
| Sleep latency (Component 2) | 1.69 \pm 0.96 | 0 – 3 | 1.54 – 1.84 |
| Sleep duration (Component 2) | 0.29 \pm 0.64 | 0 – 3 | 0.19 – 0.39 |
| Habitual sleep efficiency (Component 4) | 2.98 \pm 0.23 | 0 – 3 | 2.94 – 3.01 |
| Sleep disturbance (Component 5) | 1.59 \pm 0.57 | 1 – 3 | 1.50 – 1.68 |
| Use of sleeping medication (Component 6) | 0.19 \pm 0.50 | 0 – 3 | 0.12 – 0.27 |
| Daytime dysfunction (Component 7) | 1.40 \pm 1.10 | 1 – 7 | 1.24 – 1.57 |

Table 3. Distributions of some characteristics of the participants in terms of their MRS and PSQI scores (N= 166)

| Characteristic | MRS | Test and p value | PSQI | Test and p value |
|---|-----------------------|--------------------------------|-------------------------------------|---------------------------------|
| | Median (95% CI) | | Median (95% CI) | |
| Smoking | | | | |
| Yes | 20.00 (16.50 – 22.02) | U = 784.00 p = 0.049 | 8.00 (7.77 – 9.82) | U = 1012.00 p = 0.490 |
| No | 17.00 (18.13 – 16.43) | | 9.00 (8.87 – 9.54) | |
| Being informed on the menopausal period | | | | |
| Yes | 17.00 (15.93 – 17.52) | U = 784.00 p = 0.001 | 9.00 (8.68 – 9.33) | U = 1012.00 p = 0.046 |
| No | 21.00 (18.33 – 23.26) | | 10.00 (8.96 – 10.89) | |
| Person from whom the participant obtained the information on the menopausal period | | | | |
| Social circle | 17.00 (15.84 – 18.08) | KW = 0.435 p = 0.933 | 9.00 (8.64 – 9.61) ^a | KW = 12.386 p = 0.006 |
| Midwife, nurse | 17.00 (14.63 – 18.06) | | 9.00 (8.91 – 10.13) ^b | |
| Physician | 16.50 (14.69 -18.23) | | 8.00 (7.83 – 8.53) ^{a,b,c} | |
| Mass media | 17.00 (14.82 – 19.97) | | 9.00 (6.93 – 13.86) ^c | |
| Receiving treatment for the menopausal symptoms | | | | |
| Yes | 17.00 (15.02 – 17.60) | U = 2492.0 p = 0.122 | 8.00 (8.23 – 9.25) | U = 2368.00 p = 0.044 |
| No | 18.00 (16.95 – 18.99) | | 9.00 (8.96 – 9.76) | |
| Has menopause affected your life? | | | | |
| Yes | 17.00 (16.31 – 17.92) | U = 341.00 p = 0.003 | 9.00 (8.85 – 9.51) | U = 744.50 p = 0.806 |
| No | 23.00 (18.63 – 26.96) | | 8.50 (7.65 – 10.34) | |
| No | 18.00 (17.23 – 19.63) | | 9.00 (8.88 – 9.83) | |
| Has menopause affected your life negatively? | | | | |
| Yes | 18.00 (17.13 – 18.92) | U = 1634.0 p = 0.009 | 9.00 (8.37 – 9.84) | U = 2229.0 p = 0.800 |
| No | 15.00 (13.51 – 17.17) | | 9.00 (8.37 – 9.84) | |

MRS: Menopause Rating Scale PSQI: Pittsburgh Sleep Quality Index

Table 4. The correlation between some characteristics of the participants and their MRS and PSQI scores (N =166)

| Variable | | Age | Parity | BMI | MRS | PSQI |
|----------|-----|-------------|-------------|-------------|-------------|------|
| Age | rho | 1.00 | | | | |
| | p | | | | | |
| Parity | rho | .182** | 1.00 | | | |
| | p | .019 | | | | |
| BMI | rho | .161* | .231** | 1.00 | | |
| | p | .039 | .003 | | | |
| MRS | rho | -.006 | .039 | .114 | 1.00 | |
| | p | .941 | .621 | .141 | | |
| PSQI | rho | -.017 | -.050 | .115 | .201** | 1.00 |
| | p | .830 | .526 | .141 | .009 | |

**Spearman's correlation analysis was performed. *: Correlation at the level of 0.0d5 , **: Correlation at the level 0.01*
MRS: Menopause Rating Scale PSQI: Pittsburgh Sleep Quality Index

Discussion

Menopause is a biological process in which the estrogen level decreases as depletion of ovarian follicles and menstrual cycle stops (Excellence, 2015; Özcan et al., 2020). This period, which is included in the reproduction and old age periods in woman's life and which is normal, demonstrates that the reproduction period is over. Menopause is directly related to society and family health and it is an important period for public health (Ozcan et al., 2019). It is important to experience this period with the correct information appropriately.

In the study, 81.9% of the women had knowledge about the menopause period. 40.2% obtained this information from a healthcare professional (physician, nurse, and midwife). In their study, Özcan et al., stated that about half of the menopausal women had information on this period and only one fourth of them obtained this information from a healthcare professional (Ozcan et al., 2020). It is considered that the rate of women reaching the information on the menopausal period through the right sources was insufficient.

It was determined that 78.9% of the women participating in the study stated that their lives were affected negatively due to menopausal symptoms. The symptoms causing complaints for women were hot flush (49.6%), intolerance

(16.0%), fatigue (12.2%), and the other symptoms (22.1%). In the previous studies, it was determined that the menopausal complaints were the symptoms such as hot flush and night sweating (36-87%), sleeping problems, (40-60%), palpitation (44-50%), weight gain (60-70%), muscle and joint pain (48-72%), headache (32-71%), loss of memory (41-44%), mood changes (15-78%), and sexual dysfunction (20-30%) (Baker et al., 2018; Özcan et al., 2020; Yigitbas, 2020). The menopausal period causes women to be affected physiologically, psychologically, socio-culturally and sexually. Many studies have also reported that these symptoms affect the quality of life and health of women negatively (Aygin & Pektemek, 2018; Dye et al., 2017). The findings of the present study were similar with the findings of other studies. It was observed that the most common complaints in the menopausal period were vaso-motor symptoms and these symptoms affected the lives of women negatively.

In this study, the PSQI mean score of the women was 9.17 and all of the participants had poor sleep quality. In the literature, it was stated in the study by Özcan et al. that one in four menopausal women had sleep complaints every day. A great majority of the women with the complaints had low quality of life, as well (Ozcan et al., 2020). Also in the previous studies, 25% of the women in the perimenopausal period and 30% of the women in the postmenopausal period stated that they had

a good quality of night sleep in a few nights in a month or less frequently (Baker et al., 2009; Nowakowski et al., 2013). It was determined in the present study that the sleep problems were at a higher level and, accordingly, the quality of life was affected negatively.

It was observed that the menopausal symptoms were at a high level in the groups with the factors such as smoking, not being informed on the menopausal period, and considering that the menopause affected life negatively. In a previous study, it was stated that the menopausal symptoms were higher in those who were not informed on this period, had no chronic disease, had a low education level and a high level of income (Ozcan et al., 2020). In another study, it was reported that the menopausal symptom scores were higher in those with a chronic disease, having no knowledge about the menopause, used drugs for menopausal complaints and received Hormone Replacement therapy (Yigitbas, 2020). In some studies, it has been reported that the menopausal symptoms are observed more frequently in the groups with low income status (Im et al., 2014; Karaçam & Şeker, 2007). In the studies, it was observed that the factors related to the menopausal symptoms varied. Especially those having knowledge about the period had less symptoms.

In this study, it was determined that the factors "affecting sleep quality negatively" were having no information on the menopausal symptoms, being informed by sources other than a physician and receiving no treatment due to the menopausal symptoms. Also, it was found in the study that there was a positive weak correlation between MRS and PSQI. That is, when the menopausal complaints increased, sleep problems also increased. In the literature, it is stated that the age, socio-economic and work-related factors, chronic diseases, depression, mood disorders, hormonal fluctuations and the menopausal symptoms lead the menopausal women to have sleep problems (Cheng et al., 2008). Also there was a correlation especially between hot flush complaints and sleep problems and there was a strong correlation between night sweat and awakening (Baker et al., 2018). As a result of sleep disorders; the quality of life, healthy lifestyle behaviors, work productivity, mental state, and physical health of women are affected and their use of healthcare services increase. Also, they have long-term effects on health and welfare (Baker et al., 2018; Shaver & Woods, 2015). Also in the study by Kim, it was stated that the low sleep quality

observed in the menopausal period was higher in the women with low educational status and low income status. It was also stated that poor sleep quality and insufficient sleep duration were associated with negative health results such as obesity, cardiovascular diseases, cancer-related mortalities, diabetes, and depression (Kim et al., 2018). According to the studies, sleep problems in the menopausal period are affected by many different factors. Also, the sleep problems increased with increasing menopausal symptoms and the result of the present study is parallel with the literature.

Conclusion: The menopausal period constitutes one third of the woman's life. the quality of life of women. It was determined in the study that especially all the menopausal the symptoms which are experienced in this period and cannot be brought under control impair women had sleep problems. For this reason, it is important to identify the sleep disorders and the related risk factors in the menopausal period and treat them appropriately in terms of women's health. It is recommended to provide training on menopause for the women and their families, discuss the point of views on menopause, perform the appropriate consultancy individually or with the groups and enhance the quality of life of women.

Ethics Committee Approval: Our study was approved by the Non-Interventional Clinical Research Ethics Committee (Approval date/no: 2019/ E.26637).

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