ORIGINAL ARTICLE

Postmenopausal Women's Quality of Sleep and its Related Factors

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ABSTRACT

Aims: To asses self-reported sleep disturbance and its associated factors in 50-60-year-old Menopause women.
Settings and Design: This cross sectional study included 700 healthy 50-60-year-old women volunteers who were postmenopausal for at least 1 year. The volunteers were interviewed after providing informed consent. The study questioner included two main aspects: Personal characteristics and the Pittsburgh Sleep Quality Index (PSQI). Data were analyzed by using SPSS 14 software.
Results: The mean sleep scale score was 7.84 ± 4.4. Significant correlations had seen between sleep disturbance and characteristics of occupational status, educational status, husband's occupational status, and economical status, and (P = 0.002). There were no significant correlation between sleep disturbance and other personal characteristics, such as age; partner's age; number of children; family size; consumption of tea, coffee, or cola.
Conclusions: Sleep disturbance is common in menopausal women. Taking into account the sleep-related personal characteristics, suitable interventions should be taken to improve sleep quality, which is a very important for maintaining the quality of life.

Key Words: Menopause, related factors, sleep quality

INTRODUCTION

For many women, the onset of Menopause and symptoms associated with hormonal changes and cessation of ovulation can affect quality of life and perceptions of health and well-being. This in turn, can impact upon cultural and economic issues.[1] Estrogen decline during menopause may cause various problems such as vasomotor instability, lowered psychometric functions, vaginal and urinary infections, and forgetfulness.[2] The other symptoms include irregular menses, decreased fertility, vaginal dryness,[3] hot flashes, sleep disturbances,[3,4] mood swings, increased abdominal fat, hair thinning, and loss of breast fullness.[3]

Sleep is an essential aspect of life,[5] and insomnia is associated with negative health consequences including fatigue, impaired daytime function, reduced quality of life, and increased visits to health care providers.[2,6] Sleep disturbance is one of the important symptoms observed during menopause too[7] also common and clinically important among elderly individuals.[4,8,9]

Approximately one-third of the adult population reports symptoms of insomnia.[10] Women tend to report sleep disturbances more often than do men of the same age[11] further, insomnia is more common in patients with chronic medical problems and is observed in up to 69% of patients enrolled in primary care clinics.[12] Moreover, after menopause, the prevalence of habitual snoring and obstructive sleep apnea syndrome also increases in women.[13] In contrast, a smaller percentage of adults report severe sleep problems (10%-15%), but the prevalence of severe chronic sleep problems increases to 25% among the elderly.[14] Kravitz (2003) reported that the rates of self-

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reported sleep difficulties increase during the menopausal transition.[15] Further, the overall prevalence of self-reported sleep difficulty was 38%, and in some studies, it was found to be the least prevalent in the premenopausal group (31%) and most prevalent in the surgical menopausal group (48%).[16] Referring to study in West of Tehran (2011) its rate in healthy menopause women was 70%.[4]

Numerous national surveys have shown that approximately 30%-40% of adults experience sleep disturbances.[17,18] Also referring to study, which had done in west of Tehran (2011) 70% of healthy menopause women experiences insomnia.[4]

The main findings of a study by Young *et al*., (2003) indicated that objectively measured sleep quality does not diminish with menopause, but the association of menopause with sleep quality differs with respect to objective and subjective measures. These findings indicated that menopausal women were more dissatisfied with the quality of sleep than were premenopausal women.[19] Various factors such as snoring, aging, hot flashes, and night sweats could influence the quality of sleep during menopause.[1]

Based on the results of the aforementioned studies and due to the fact that sleep disturbance is one of the important symptoms observed during menopause and aging, this study was conducted to determine rate of self-reported sleep disturbance in west of Tehran and its associated factors in 50-60-year-old women.

MATERIALS AND METHODS

This is a cross-sectional study conducted at four selected clinics of the Tehran University of Medical Sciences in west of Tehran, during March 2010 to June 2012. This study is the first phase of a research proposal entitled "The effect of valerian and lemon balm on the sleep quality in menopausal women: A randomized placebo-controlled clinical trial." In this phase, we were trying to screen menopause women to find those with sleep problems, for entering volunteers to the second phase of mentioned study. The inclusion criteria were as follows:[1] generally healthy women between 50-60 years of age, postmenopausal for at least 1 year, and not undergoing hormone replacement therapy;[2] absence of a medical or psychiatric condition that could cause sleep disturbance;[3] and having scores of 5 or more by using Pittsburgh Sleep Quality Index (PSQI). The volunteers included 700 healthy Menopause women, who were informed about the research and its purposes. Volunteers who were undergoing hormone replacement therapy and/or indulged in tobacco, drugs, or alcohol consumption at the time of the study were excluded. Thus, 700 volunteers were finally included in this study, and were requested to complete a questionnaire regarding their personal characteristics and PSQI.

The aim of the study was explained to the entire 700 volunteers, whom had qualified for the first phase of study filed in provided written informed consent, then interviewed by using a questionnaire, which had three main sections of personal characteristics, perception towards sexual satisfaction and PSQI. The section on personal characteristics included the following 15 items: Age; partner's age; date of last menstruation; family size; number of children; number of children living with the volunteers; educational status; economic status; marital status; occupational status; partner's occupational status; average rate of daily consumption of tea, coffee, and colas. Referring to their perception of sexual satisfaction the visual analog scale (VAS, scale ranging from 0-10) was used. The PSQI section was a self-rated questionnaire that assessed sleep quality and disturbances over 1 month period. The questionnaire had 19 items that were used to generate 7 composite scores. The composite scores provided information about subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, sleep medication use, and daytime dysfunction. The scores from the seven components were then summed to yield a single PSQI score. When this single global PSQI score is greater than 5, it is nearly 90% sensitive and specific with regard to diagnosing "poor" sleep. The post hoc cut-off score of 5 on the PSQI produced a sensitivity of 89.6% and specificity of 86.5% of patients versus control subjects.

The sample size was calculated based on 80% power and 5% type 1 error and it was determined that 700 subjects were needed for the study. Therefore, we delivered the PSQI questionnaire to 700 volunteers who met the inclusion criteria.

Data were analyzed by using SPSS 14 software. Descriptive statistics, including measures of mean and variance, were calculated for each volunteer's main outcomes. To determine the correlation between the variables and sleep quality, inferential statistics such as Pearson's test, *t*-test, and one-way analysis of variance (ANOVA) were used.

This study was approved by the Ethics Committee of Tehran University of Medical Science (TUMS), the oldest and largest Medical Science University of Iran. The members of the Ethics Committee follow the progression of the research from the first step of designing the research proposal to the presentation of the final report.

RESULTS

The demographic data obtained from the questionnaire are shown in Table 1. The average age was 52.9 ± 3.3 years, average menopause age was 47.4 ± 3.8 years, average duration of menopause was 5.5 ± 4.4 years, average family size was 4.4 ± 2.06 members, average number of children was 4.8 ± 2.02, and average number of married children was 2.7 ± 2.09. All volunteers drank tea daily, and only 5% did not drink coffee and colas. The highest daily tea consumption was more than four cups per day (32.2% of the volunteers), and the highest daily coffee consumption was 71.4%.

Table 1: Demographic characteristics of the participants

Variable	Group	*N*	(%)	Mean ± SD
Age	50-52	462	66	52.9±3.3
	53-55	98	14	
	≥56	140	20	
Menopause age	40-44	182	26	47.4±3.8
	45-49	350	50	
	≥50	168	24	
Age difference with partner	0	14	2	6.1±4.2
	1-4	252	36	
	5-9	168	24	
	10-14	140	20	
	No partner	126	18	
Marriage status	Married	574	82	
	Single	126	18	
Number of pregnancies	0-2	98	14	5±2.05
	3-4	238	34	
	5-6	238	34	
	≥7	126	18	
Family size	1-2	84	12	4.4±2.06
	3-4	322	46	
	≥5	294	42	
Number of children	0-2	112	16	4.8±2.02
	3-4	308	44	
	5-6	280	40	
Number of married children	0	70	10	2.7±2.09
	1-2	350	50	
	3-4	196	28	
	≥5	84	12	
Educational status	Illiterate	336	48	
	Primpary school	252	36	
	Second school	112	16	
Occupational status	Employed	28	4	
	Housewife	672	96	
Economical status	Good	98	14	
	Moderate	392	56	
	Bad	210	30	
Husband's occupational status	Worker	154	22	
	Employed	126	18	
	Retired	294	42	
	Other work	126	18	

Regarding to PSQI, which assesses sleep quality and sleep disturbances over one month period, the frequency of sleep disturbance was found to be 70% [Table 3].

Significant correlations with sleep disturbance just were observed for four characteristics of occupational status, educational status, husband's occupational status, and economical status [Table 2]. Sleep disturbance was not significantly correlated with age; menopause age; age of partner; number of children; family size; and consumption of tea, coffee, and cola.

DISCUSSION

This study investigated correlations between personal characteristics and self-reported sleep disturbance in 50-60-year-old menopausal women.

Poor sleep quality is highly prevalent in menopausal women.[7,20] The most important intervention factor for decrease in sleep quality in menopausal women is reduction in hormone levels. Age is not the only factor associated with difficulty in sleeping.[16] Moreover, the unique hormonal and psychological changes that occur in middle-aged women at the time of menopause have a significant effect on sleep disturbance.[13] In this study, it was found that age and sleep quality are not correlated. This may be because all the volunteers were postmenopausal with ages ranging from 50-60 years.

Table 2: Analyze of personal characteristics and the pittsburgh sleep quality index (PSQI)

Characteristics	Highest group	Percentage (%)	Analysis
Occupational status	Housewife	96	*t* test, $P = 0.004$
Educational status	Primary school	36	ANOVA*, $P = 0.04$
Husband's occupational status	Retired	52.1	ANOVA, $P = 0.02$
Economical status	Middle	56	ANOVA, $P = 0.000$
Family size	4	46	*t* TEST, $P = 0.13$
Menopause age	46	50	*t* TEST, $P = 0.63$
Married Statues	married	83	X^2, $P = 0.61$

*Analysis of variance

Table 3: Sleep quality and frequency of sleep disturbance using PSQI

PSQI*	*N*	Percent (%)
0-5 (Safe)	262	37.5
5-10 (Mild insomnia)	224	32
10-15 (Moderate insomnia)	182	26
15-21 (Severe insomnia)	32	4.5

*Pittsburgh sleep quality index

In this study, sleep quality and the occupational status (highest group were housewife) were found to be correlated. Furthermore, a correlation was identified between sleep quality and the husband's occupational status, which may be because of lower economical statuses, may have poor access to medical care or having more family distress.

Ohayon *et al*., (2005) reported that a high degree of education is associated with sleep difficulty[16] and Leshner *et al*., (2005) determined, that being less educated is associated with a higher prevalence of insomnia.[21] Habte-Gabr *et al*., (1991) reported that individuals with lower educational statuses may have poor access to optimal medical care and have lifestyles that may result in an overall poor health status.[22] This is expected to increase the risk of sleep disturbances.[8] We found a correlation between educational statuses and sleep quality, and our results were similar to those of the aforementioned studies.

Leshner *et al*., (2005) indicated that lower income levels are associated with a higher prevalence of insomnia.[21] In this study, economic status and sleep quality were found to be correlated.

The personal characteristics with the highest significant correlation with sleep are economic status, occupational status, husband's occupational status, and educational status. One limitation of this study is the low number of participants. We recommend that more volunteers be recruited for subsequent studies.

CONCLUSION

Our study population included 700 postmenopausal women. It would be helpful to conduct another study with higher number of menopausal women in all districts in Tehran for finding sleep disturbance prevalence. Also conduct other study with andropausal men too. Since the highest groups of menopause was housewife and there was correlation between occupational status and sleep disturbance, it is necessary to do another research for finding its reason, also need to provide more educational and consultation for this high-risk group. The medical staff should be made aware of the personal characteristics of menopausal women, completion of the reproductive period and the commencement of menopause, and importance of sleep quality. Proper planning to execute appropriate guidelines, along with counselling of qualified professionals in supervisory roles is also advisable. This approach could help menopausal women prevent psychological and social damage caused by sleep disturbance.

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