Sleep−Related Factors in Middle-Aged Women

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Abstract

The purpose of this study was to analyze the correlation between sleep quality, menopausal symptoms, depression, daytime drowsiness, and sunlight of middle-aged women. The subjects of this study were 125 women middle-aged 40-60 years old, women who were not currently receiving any disease or hormone therapy. Subjects were asked face-to-face and directly input on a mobile questionnaire using a mobile phone, and data were collected in compliance with ethical guidelines. Data were collected using Menopause Rating Scale (MRS) for menopausal symptoms, the Pittsburgh Sleep Quality Index (PSQI) for sleep quality, and the Beck Depression Inventory (BDI) for depression. Data were analyzed by descriptive statistics, t-test, ANOVA, and Pearson's Correlation Coefficient method. As a result of this study, the higher the level of depression, menopausal symptoms, daytime drowsiness, apnea during sleep, snoring, contractions or convulsions during sleep, the quality of sleep in middle-aged women decreased and worsened. In particular, depression was a major related factor in deteriorating sleep quality. Also, the quality of sleep had a high correlation in the order of menopausal symptoms, no breathing during sleep, snoring, and daytime sleepiness. It is necessary to develop a nursing intervention to improve the quality of sleep by mediating related factors for middle-aged women with low sleep quality.

Keywords: Middle-aged women, Sleep patterns, Menopausal symptoms, Depression, Daytime drowsiness

1. Introduction

With the prolonged life expectancy of humans, women lived more than a third of their lives as women after middle age. The middle age is the middle stage between maturity and old age among the developmental stages of life. In this period, in addition to physical changes due to aging and endocrine system balance, it is a time to adapt to various changes such as psychological and social factors such as changes in roles in the family, changes in the social support system, and loss of relationships between individuals. It is also a time to re-evaluate yourself and your life [1].

Among Korean middle-aged women, 95% of women develop menopausal symptoms for a period of 2 to 8 years before and after menopause [2].

Sleep disturbance in middle-aged women is one of the changes and difficulties that go through menopause, and the incidence is high, especially during menopause [3]. Yeom [4] stated that the health problems arising from menopausal symptoms in middle-aged women are

mainly sleep disorders, and that they are trying to achieve sleep through sleeping pills or drinking alcohol. Also, Cho [5] said that the more severe the menopausal symptoms, the lower the quality of sleep or the more severe the sleep disorder.

Sleep, which accounts for one-third of the entire life, is not only essential for humans to carry out normal activities, and lack of sleep leads to fatigue and deterioration of physical activity, so it is an important health problem. As women are more associated with changes in sleep patterns than men [6], sleep disorders are a health problem that cannot be overlooked, and in particular, as women are emerging as more serious problems, in-depth research is required.

In addition to menopausal symptoms, many factors affect sleep in middle-aged women. Depression and anxiety are considered the most frequent negative emotions among middle-aged women. The average annual increase rate of depressed patients was 4.7% for women, almost twice as high as 2.6% for men [7][8].

Kim [9] said that sleep disturbances in adult women are not only related to menopause, but also stress and depression. These [10] said that sleep disorders and depression are reversible and interdependent. Also, various previous studies [11][12] also suggested the relationship between menopausal symptoms and depression. Also, it is necessary to investigate the relationship with the sleep patterns of middle-aged women.

Daytime drowsiness refers to inadequate sleepiness during working hours, and people with sleep disorders complain that daytime drowsiness is inevitable, such as falling asleep while sitting [13]. Hubin et al. [14] surveyed the relationship between daytime drowsiness and depression in adults. As a result, 11.0% of women and 6.7% of men were suffering from daytime drowsiness, and 25% of them had severe depression. And 11% were taking medications such as tranquilizers or sleeping pills. As such, daytime drowsiness was also associated with depression, which is associated with sleep disturbance, so it is necessary to study whether it is related to sleep quality in middle-aged women.

The relationship between sleep and light is also suggested. Light therapy was found to be an effective intervention in improving sleep quality, depression, and menopausal symptoms [15], and was effective for sleep disorders and serotonin levels in menopausal women [16]. Even for the elderly with dementia, light therapy positively induces sleep and is effective in reducing depression [17], showing that light therapy has an intervening effect to improve sleep quality.

Also, coffee and tea with caffeine as factors affecting sleep have been suggested as drinks that should be avoided in the late afternoon as they degrade sleep quality. Although alcohol has a temporary hypnotic effect on depression, it has been reported to interfere with sleep. Also, in the middle age of women, negative changes such as changes in menopausal hormones, decline in physical function, changes in social support systems, changes in roles according to the independence of children, changes in the body, satisfaction in marriage, and bereavement with spouses or parents. For middle-aged women, these changes can be an important factor that impairs sleep quality [5].

Identifying the various factors affecting the sleep quality of middle-aged women suffering from menopausal difficulties will be a meaningful study for middle-aged life. The results of this study could be used to develop a program to help middle-aged women overcome sleep problems experienced by middle-aged women. Accordingly, it is necessary to explore the factors that affect the sleep of middle-aged women.

Therefore, this study aims to analyze the relationship between sleep patterns and menopausal symptoms, depression, daytime drowsiness, sunlight in middle-aged women. Through this, we intend to provide basic data on management and intervention for the

desirable sleep pattern of middle-aged women, an important point in which the remaining life is determined.

2. Materials and methods

2.1. Participants

The subjects were 125 middle-aged women between the ages of 40 and 60 who are currently experiencing natural menopause rather than artificial menopause. The survey interviewees who had received pre-training were asked to personally enter the structured mobile questionnaire using a mobile phone by confronting the subjects. In the process of data collection, it was explained in advance that the collected data will be used only for research purposes and confidentiality is guaranteed, taking ethical considerations to the subject. Also, after explaining the purpose of the study and the contents of the questionnaire, and notifying that the collected data will be processed anonymously, the survey was conducted on voluntary participants who wrote a written consent to participate in the study.

2.1.1. Questionnaire on sleep patterns

Sleep patterns were developed by Buysse et al. [18], and the Pittsburgh Sleep Quality Index (PSQI) was adapted by Sohn et al. [19], Used. PSQI-K measures the quality of sleep over the past 1 month and consists of a total of 19 questions. The total score ranges from 0 points to 21 points, and the higher the score, the worse the sleep quality. The internal consistency Cronbach's α value in this study was .829.

2.1.2. Questionnaire on menopausal symptoms

As a tool for measuring menopausal symptoms, the Korean version of Menopause Rating Scale (MRS) developed by Heinemann et al. [20] is used. It consists of 3 subdomains with 11 questions in total, 4 questions in the somato-vegetative domain, 3 questions in the urogenital domain, and 4 questions in the psychological domain. On a 5-point scale, the score ranges from 0 to 'No symptoms' and 4 points for 'very severe', ranging from 0 to 44. The higher the score, the more severe the perceived menopausal symptoms. The total score is 0 to 4 points, with almost no level, 5 to 7 points at a mild level, 8 to 15 points at a severe level, and 16 points or more at a very severe level. The internal consistency Cronbach's α value in this study was .833.

2.1.3. Questionnaire on depression

As a tool for depression, the BDI of Beck [21], which Hahn et al. [22] translated into Korean, was used. BDI is composed of 21 items including emotional, cognitive, and physiological symptom areas, and each item consists of 4 statements for each symptom intensity. For each question, a score of 0 to 3 is given, and the total score ranges from 0 to 63. Beck classified the degree of depression according to the total score of BDI. 0-9 points were non-depressed, 10-15 points were mild depression, 16-23 points were severe depression, and 24-63 points were very severe depression. The internal consistency Cronbach's α value in this study was .919.

2.1.4. Questionnaire on daytime drowsiness

The daytime drowsiness scale was a measure that quantified the degree of subjective drowsiness, and a tool modified by Cho et al. [23] was used. It evaluates each individual's self-awareness of sleep and arousal. Eight situations that can cause drowsiness are set, and the degree of drowsiness according to each situation can be selected in four stages, enabling an overall evaluation of drowsiness. A score of 11 or higher was judged as abnormal excessive daytime drowsiness. The internal consistency Cronbach's α value in this study was .919.

2.2. Data analyses

The collected data were statistically processed using SPSS WIN 22.0. General characteristics were analyzed by frequency and %, and sleep quality according to general characteristics was analyzed by t-test and ANOVA. The correlation between the subject's sleep quality, menopausal symptoms, depression, daytime drowsiness, and sunlight time was analyzed by Pearson's Correlation Coefficient.

3. Results and discussion

3.1. Socio-demographic characteristics

As for the age of the subjects, 49 patients (39.2%) were 46-50 years old, and 106 patients (84.8%) were married. 79 (63.2%) had 2 children and 37 (29.6%) had disease. As for the exposure time to sunlight, 52 people (41.6%) had 30 minutes to 1 hour per day, and 36 (28.8%) had more than 1 hour [Table 1].

Table1. Socio-demographic characteristics N=125

Characteristics	Categories	n(%)
age(year)	40-45	18(14.4)
	46-50	49(39.2)
	51-55	41(32.8)
	56-60	17(13.6)
Marital status	Married	106(84.8)
	Single	9(7.2)
	Separation	1(.8)
	Bereavement	3(2.4)
	Divorce	6(4.8)
Children(n)	0	11(8.8)
	1	19(15.2)
	2	79(63.2)
	≥3	16(12.8)
Disease	None	88(70.4)
	Have disease	37(29.6)
Sunlight exposure time(minute)	None	8(6.4)
	29<	29(23.2)
	30~59	52(41.6)
	≥60	36(28.8)

3.2. Sleep quality by the Socio-demographic characteristics

As a result of this study, there was no significant difference in the sleep quality level of middle-aged women according to the exposure time of sunlight, marital status, and disease status.

In particular, it has been confirmed that light therapy is an effective intervention to improve sleep quality, depression, and menopausal symptoms (Kang) [15], but in this study,

the level of sleep quality of middle-aged women is not related to the time of sunlight. A more in-depth study is required [Table 2].

Table 2. Sleep quality by the Socio-demographic characteristics   (n=125)

Characteristics	Categories	Mn	t or F	p
Sunlight exposure time(minute)	None	18.0	0.513	.674
	29<	20.4		
	30~59	19.2		
	≥60	20.4		
Marital status	Single	18.9	0.513	.665
	Married	19.6		
	Separation, Bereavement, Divorce	21.4		
Disease status	None	18.5	-3.563	.764
	Have disease	22.9		

3.3. Correlation among the factors related to sleep patterns in middle-aged women

The quality of sleep in middle-aged women was correlated with depression, menopausal symptoms, daytime drowsiness, apnea during sleep, snoring, contractions or convulsions during sleep.

Among them, middle-aged women's sleep quality had the highest correlation with depression, followed by menopausal symptoms, apnea during sleep, snoring, and daytime drowsiness. These [10] suggested that sleep disturbance and depression are reversible and interdependent, suggesting a relationship between sleep disturbance and depression. In this study, the sleep quality of middle-aged women had the highest correlation with depression, which was consistent with previous studies.

Menopausal symptoms show mental symptoms such as depression, irritability, anxiety, and mental fatigue [24], and these symptoms can reduce the quality of sleep in middle-aged women. In the results of this study, the more severe the menopausal symptoms, the lower the sleep quality, and the menopausal symptoms were correlated with the sleep quality.

People with sleep disorders complain that daytime drowsiness, such as sleeping while sitting, is inevitable [13]. It can be said that the result of not getting enough sleep due to a sleep disorder causes daytime sleepiness. In this study, daytime drowsiness was also correlated with sleep quality, and also, apnea and snoring during sleep also reduced sleep quality [Table 3].

Table 3. Correlation among the factors related to sleep patterns in middle-aged women

Characteristics	Sleep quality	Menopausal symptom	Daytime drowsiness	Depression	Snoring	Apnea durin	Convulsions during	Confusion during	Sunlight exposu

		s					g sleep	sleep	sleep	re time
Sleep quality	1									
Menopausal symptoms	.485**									
Daytime drowsiness	.307**	.215*								
Depression	.591**	.371**	.486**							
Snoring	.381**	.268*	-.048	.130**						
Apnea during sleep	.438**	.183	.038	.051**	.374					
Convulsions during sleep	.224*	.138	.055	.121*	.254	.129				
Confusion during sleep	.075	.216	-.083	.024	-.116	-.056	.281			
Sunlight exposure time	.051	.039	.155	.070	.045	-.050	.090	.194	1	

*p<.05, **p<.01*

4. Conclusion

Women, in particular, have more to do with changes in their sleep patterns than men, and have more sleep disturbances than men. In other words, it can be seen that women have many sleep-related problems, such as lower quality of sleep compared to men and complaining of more sleep disorders [6].

As a result of this study, the higher the level of depression, menopausal symptoms, daytime drowsiness, apnea during sleep, snoring, contractions or convulsions during sleep, the quality of sleep in middle-aged women decreased and worsened. In particular, depression was the most correlated with sleep quality, and depression was a major related factor in deteriorating sleep quality. Also, the quality of sleep had a high correlation in the order of menopausal symptoms, no breathing during sleep, snoring, and daytime sleepiness.

Accordingly, it is necessary to develop a nursing intervention to improve the quality of sleep by mediating related factors for middle-aged women with low sleep quality. In addition to the factors seen in this study, other factors need to be integrated and considered.

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