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Original Article

Prevalence of Insomnia in Menopausal Women

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ABSTRACT

Menopause represents a pivotal period in a women's life, encompassing significant biological, psychological, and social transformations. The majority of women going through menopause commonly encounter the challenge of experiencing recurring and frequent insomnia. **Objective:** To determine the prevalence of insomnia in menopausal women in Rawalpindi and Islamabad. **Methods:** Between November 2022 and June 2023, following the duration of 6 months, a descriptive cross-sectional investigation was undertaken, involving 267 menopausal women. The data were gathered from the general population of Rawalpindi/Islamabad, encompassing both housewives and hospital outpatients, utilizing a convenience sampling. Those individuals fulfilling the eligibility criteria underwent evaluation for insomnia employing the Athens Insomnia Scale. Data analysis were conducted utilizing SPSS version-25. **Results:** Out of 267 participants, 43.1% had insomnia when assessed by AIS-8. The mean age of the participants was 51.80 ± 7.197, onset of menopause was < 5 years by majority (70.8%) of the females with the most prevalent symptom of insomnia, "Final awakening earlier than desired" while the least common was "Impairment in functioning during the day" reported by menopausal women. **Conclusions:** Our study findings indicated that insomnia is prevalent among menopausal women, with the most common symptom being waking up earlier than desired. On the other hand, the least commonly reported symptom among menopausal women was impaired daytime functioning due to insomnia.

INTRODUCTION

Sleep is defined by diminished motor movements, lowered stimulus response, standardized posture, and very simple reversibility process [1]. The act of sleeping is not a uniform process. It comprises two distinct categories: REM sleep, which stands for rapid eye movement sleep, and NREM sleep, which stands for non-rapid eye movement sleep. These two categories exhibit fundamental differences. Both the circadian and homeostatic processes are involved in regulating sleep [2]. There is strong relationship between sleep duration and various health indicators. However, the adverse effects of inadequate sleep appear to hold a substantially greater significance in contemporary society [3]. Sleep needs refer to one's typical sleep duration when not influenced by previous sleep deficits, while inadequate sleep is defined as a level of sleepiness that begins to lead to cognitive and functional impairments [4]. Inadequate sleep has adverse effects on cognitive functioning, mood regulation, and recovery after physical activity. Additionally, compromised sleep quality can detrimentally influence decision-making, the speed and accuracy of task performance, as well as recovery following exercise. Factors such as age, psychological and physiological conditions, cultural influences, and environmental elements collectively influence both the quantity and quality of sleep we experience [5]. Females are more likely than males to report experiencing insomnia

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[6, 7]. Insomnia is defined as, lack of satisfaction with either the quality or quantity of sleep. This is frequently accompanied by trouble falling asleep, trouble staying asleep, frequent awakenings or trouble falling back to sleep following awakenings, and early morning awakenings with difficulties falling back to sleep. The disturbance occurs at least three evenings a week for 1 to 3 months [8]. Notable proportion of women face sleep difficulties as they approach and navigate through menopause [9]. Around 26% of these women experience severe symptoms that disrupt their daily functioning and potentially expose them to the risk of being diagnosed with insomnia. Annually, the menopause transition impacts over 500 million women aged between 42 and 55, with an average age of 51 [10]. Menopause is characterized by the cessation of ovarian follicular activity resulting from a decline in estrogen levels. An indicator of menopause is the cessation of menstrual flow for a minimum duration of one year [11]. The menopausal transition unfolds progressively and encompasses three distinct stages with evident clinical manifestations: premenopausal, perimenopausal, and postmenopausal. Premenopausal individuals were identified as those who experienced consistent and regular menstrual cycles over the preceding 12 months and were at least 35 years old. Perimenopausal individuals were characterized by irregular or absent periods for a duration of three to twelve consecutive months. Postmenopausal individuals were those who affirmed that their last menstrual period occurred more than a year ago [12, 13]. Sleep problems, such as increase insomnia, reduced sleep quality, and increased sleep disruptions, are commonly observed in peri- and postmenopausal women. Notably, a robust link exists between insomnia and coronary heart disease (CHD), particularly in the context of postmenopausal women [14]. While the majority of symptoms experienced during menopause are not fatal, they do exert a negative impact on the social and professional aspects of middle-aged women's lives, as well as their overall quality of life [15]. The number of women experiencing menopause is increasing day by day as due to their increasing age and certain other external factors. Health care centers now have separate departments for middle-aged women because chances of having comorbidity increases with the age and menopause. Although the prevalence of insomnia and association of insomnia with menopause have been well reported internationally, but limited work has been conducted on insomnia and menopause in Pakistan. The objective of the present study was to determine the prevalence of insomnia among menopausal women in Rawalpindi/Islamabad, Pakistan.

METHODS

A descriptive cross-sectional study was conducted on 267 menopausal women aged above 35 who had been in a state of menopause for at least a year. The data were collected from general population of Rawalpindi/Islamabad (including house wives and hospital OPD patients) through convenient sampling on the duration of 6 months from November 2022 to June 2023.Participants with any psychiatric disorder, cardiac problem, asthma, overactive thyroid, hysterectomy, history of polycystic ovarian syndrome, history of sleep issue before menopause, being on sedatives or hypnotic drugs, were omitted from the study. After obtaining informed consent, self-structured questionnaire was used to collect information regarding demographics of the menopausal women. Participants who met inclusion criteria were assessed for insomnia by Athens Insomnia Scale (AIS-8). The AIS-8, is an 8-item self-report questionnaire with high internal consistency, a Cronbach's alpha of 0.89 that measured the intensity of sleep difficulties. Five items out of 8 assessed difficulty in sleep induction, awakening during the night, early morning awakening, total sleep duration, and overall sleep quality. Remaining three items pertained to the next-day consequences of insomnia (sense of well-being during the day, functioning (physical and mental) during the day, and sleepiness during the day). A 4-point numeric rating system is used to provide ratings for each item, with 0 denoting no problems at all and 3 denoting highly serious issues. AIS-8 has a total score range of 0 to 24. Insomnia is deemed to be present when a score of 6 or higher is obtained [16]. The sample size was calculated using Rao Soft Software. With population estimate of 20,000, sample size of 267 was recommended by the software. The margin of error was 5%, the confidence level was 90% and the response distribution was 50%. All the work was done after the approval from ethical review committee of Margalla Institute of Health Sciences, Rawalpindi (Ref. No. DK/176/22, dated November 11, 2022). Data were gathered after written consent from the participants. Participants had their right to ask any question regarding study or to terminate their participation at any point. Descriptive statistics were used to examine the data collected through questionnaires (e.g., mean and standard deviation). Data were presented in graphical and tabular form. All the statistical analysis were conducted using SPSS 25 software(SPSS Inc. Chicago IL, USA).

RESULTS

Questionnaires were distributed among 303 participants, out of which 35 did not fulfil the eligibility criteria were excluded from the study. Out of the remaining 268 participants, 1 was not willing to give data, final data were analyzed for 267 participants. Demographic details of participants were recorded, and each participant was

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interviewed individually in order to complete the data. The mean age was 51.80 ± 7.197 years, mean height was 163.17± 10.495cm, mean weight of the participants was 77.91 ± 11.106kg, and mean BMI turned out to be 29.67 ± 6.004 as shown in table 1.

Table 1: Demographics

Variables	Mean ± SD
Age (years)	51.80 ± 7.197
Weight (kg)	77.91 ± 11.106
Height (cm)	163.17± 10.495
BMI	29.67 ± 6.004

Table 2 shows the symptoms of insomnia as described by AIS-8 scale in percentages.

Table 2: Symptoms of Insomnia

Symptoms of Insomnia	Mean ± SD
Final awakening earlier than desired	57.7%
Sleep induction	56.9%
Awakening during the night	56.2%
Total sleep duration	53.2%
Sleepiness during the day	52.4%
Sense of well being	51%
Overall quality of sleep	49.8%
Functioning during the day	43.1%

Table 3 shows frequency and percentage of insomnia by using AIS-8. According to this scale 43.1% of menopausal women were having insomnia with a score of 6 or higher.

Table 3: Prevalence of Insomnia

Prevalence	N (%)
Insomnia (≥6)	115 (43.1)
No Insomnia (<6)	152 (56.9)

DISCUSSION

The aim of the present study was to explore the prevalence of insomnia among menopausal women residing in Rawalpindi and Islamabad. The results illuminated a significant prevalence of insomnia within this demographic, affecting a notable 43.1% of the participants under investigation. This discovery sheds light on the pertinent issue of sleep disturbances during the menopausal phase. These findings were consistent with the work done by Wang *et al.*, and Arakane *et al.*, [15, 17]. The findings of current diverged from the research conducted by Monterrose *et al.*, [18], which indicated a 27.5% prevalence of insomnia among females. This variance could potentially be attributed to differences in age distribution. The present study included a larger proportion of females aged 50 and above. Previous literature suggests a correlation between age and increased insomnia rates, and it's noteworthy that the prior study encompassed various menopausal stages, whereas our investigation specifically focused on postmenopausal women. In a different investigation carried out by Shan *et al.*, a prevalence of 59.6% was recorded for insomnia among females [19]. The rise in insomnia occurrence, when contrasted with present study, can be attributed to variations in age demographics. Previous study included females aged 40 to 89 years, which contributes to the disparity in insomnia prevalence. Rahman *et al.*, Conducted an additional study that concluded dissimilar outcomes compared to the present research, indicating a prevalence of 52.2% [20]. This variance can be attributed to the fact that the former study comprehensively assessed all menopausal symptoms, encompassing sleep disorders, utilizing the MRS tool. In contrast, our study specifically focused on the aspect of insomnia.

CONCLUSIONS

Our study findings indicated that insomnia is prevalent among menopausal women, with the most common symptom being waking up earlier than desired. On the other hand, the least commonly reported symptom among menopausal women was impaired daytime functioning due to insomnia.

Authors Contribution

Conceptualization: KB, UK, FA, HK, SM, RB
Methodology: SM, RB
Formal Analysis: KB
Writing-review and editing: KB, UK, FA, HK, SM, RB

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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