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Garima Patel

Research Scholar, Department of Kriya Sharir, Faculty of Ayurveda, IMS, Banaras Hindu University, Varanasi, Uttar Pradesh, India

Anindya Sundar Choudhury

Research Scholar, Department of Swasthavritta & Yoga, faculty of Ayurveda, IMS, Banaras Hindu University, Varanasi, Uttar Pradesh, India

Effect of yoga on insomnia in menopausal women

Garima Patel and Anindya Sundar Choudhury

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Abstract

Yoga has been increasingly recognized for its potential benefits in managing various health conditions, including insomnia, particularly among menopausal women. Menopause often brings about significant physiological and psychological changes that can lead to sleep disturbances. This review aims to explore the effectiveness of yoga as a therapeutic intervention for insomnia in menopausal women. Through a comprehensive review of recent research, we examine how yoga practices, including asanas (postures), pranayama (breathing exercises), and meditation, impact sleep quality and overall well-being. The findings suggest that regular yoga practice can significantly reduce symptoms of insomnia and improve sleep patterns among menopausal women. The study highlights the importance of incorporating holistic approaches like yoga into treatment plans to enhance the quality of life during menopause.

Keywords: Yoga, insomnia, menopause, menopausal women

Introduction

Menopause is a significant phase in a woman's life marked by hormonal changes that can lead to various symptoms, including insomnia. Studies suggest that menopausal transitions, such as perimenopause and postmenopause, are associated with a higher incidence of insomnia due to hormonal fluctuations and the loss of the protective respiratory hormonal effect, leading to fragmented and poor-quality sleep^[1, 2]. Insomnia affects around 60% of postmenopausal women and can be exacerbated by factors like hot flashes, mood changes, and social adjustments, impacting the overall quality of life^[3]. The Study of Women's Health Across the Nation (SWAN) indicates that sleep disorders become more common with advancing age. The incidence of these disorders varies, affecting 16% to 42% of premenopausal women, 39% to 47% of perimenopausal women, and 35% to 60% of postmenopausal women, thereby impacting their overall quality of life^[4].

Research emphasizes the importance of tailored approaches to managing menopausal symptoms, including insomnia, through cognitive-behavioral techniques, hormone therapy, sedative-hypnotic agents, and antidepressants^[5]. Hormone therapy (HT) for insomnia in menopausal women can have potential side effects that need to be considered before prescribing. While HT can effectively alleviate sleep disturbances, especially when accompanied by disruptive vasomotor symptoms^[6]. Additionally, HT has been criticized for its side effects and drug dependence, prompting the exploration of alternative treatments like Yoga^[7]. Yoga is beneficial in improving insomnia in menopausal women. Multiple studies have highlighted the positive impact of yoga on sleep quality and menopausal symptoms in women across different menopausal stages. Research indicates that yoga significantly decreases menopausal symptoms, and improves overall sleep quality by reducing insomnia^[8, 9].

Method

A literature search for studies (January 1980–January 2020) focusing on sleep disturbances during menopause published in the Pubmed and Google Scholar was performed using the search terms 'yoga', 'menopause' and 'sleep disturbances/disorders' and 'insomnia'. We considered studies investigating.

Corresponding Author:

Anindya Sundar Choudhury

Research Scholar, Department of Swasthavritta & Yoga, faculty of Ayurveda, IMS, Banaras Hindu University, Varanasi, Uttar Pradesh, India

The prevalence of sleep disorders in menopausal transition; the pathogenesis mechanisms at the basis of the association between menopause and insomnia and the therapeutic options for insomnia during menopause. Exclusion criteria were language other than English; unavailable full-length texts, dissertations; and correspondence.

Menopause

Menopause is a natural biological process in a woman's life marked by the cessation of menstrual periods for 12 consecutive months, typically around the age of 51^[10]. Menopause is the natural and irreversible cessation of menstruation due to a lack of estrogen, unlinked to any disease. The term menopause is derived from the Greek words "PAUSIS" meaning pause, and "men" meaning month. The absence of menstruation for twelve consecutive months signifies the conclusion of a woman's reproductive and childbearing years^[11].

Stages of Menopause

The three stages of menopause are well-defined based on various criteria. The first stage is perimenopause, also known as climacteric, which typically begins 2-5 years before menopause around the age of 40, characterized by irregular menstrual cycles and hormonal changes^[12]. The second stage is perimenopause, encompassing the menopausal transition through the first year of amenorrhea, lasting around 5-8 years post-menopause, marked by various symptoms like hot flashes, insomnia, and mood changes^[13]. The final stage is post menopause or senescence, occurring after the first year of amenorrhea, where women are considered permanently in the late postmenopausal state, experiencing further biological changes like genitourinary atrophy and potential complications associated with hormonal shifts^[14].

Symptoms of Menopause

Menopause is characterized by a variety of symptoms that can affect women differently. Some common symptoms include: Hot flashes (Sudden feelings of heat that spread through the body, often with sweating and a red, flushed face), Night sweats (Hot flashes that occur at night, disrupt sleep), Irregular Periods (Before menstruation completely stops, periods can become irregular), Vaginal Dryness (Decreased estrogen can cause dryness, itching, and discomfort), Mood Changes (Increased risk of mood swings, anxiety, and depression), Sleep Problems (Difficulty falling or staying asleep, often related to night sweats), Weight Gain and Slowed Metabolism (Many women experience weight gain and changes in body shape), Thinning Hair and Dry Skin (Reduced estrogen can lead to hair loss and changes in skin texture), Loss of Breast Fullness (Breasts may lose fat and tissue, decreasing size and fullness), Decreased Libido (Reduced sexual desire and arousal), Memory Problems (Some women report difficulty concentrating and memory lapses), Joint Pain (Aches and pains in the joints and muscles).

Pathophysiology of menopause

The natural physiological process of menopause occurs in elderly women when there is a rapid decrease in the number of primary ovarian follicles, making them insufficient to respond to the effects of FSH. Consequently, there is no ovulation and no LH surge, which leads to a decrease in estrogen synthesis and the end of menstruation. Years after menopause begins, LH and FSH levels continue to rise

unchecked. Some people may not have any symptoms other than the cessation of their periods since the adrenal glands can still create small levels of estrogen through conversion from testosterone^[15].

Insomnia

Insomnia is a prevalent sleep disorder characterized by difficulties in falling asleep, staying asleep, or waking up too early, leading to daytime impairments such as fatigue, cognitive issues, and mood disturbances^[16-18]. It can manifest as primary insomnia, occurring independently of other health conditions, or as comorbid insomnia, often associated with medical or psychiatric disorders^[19]. Insomnia can have various forms, including acute and chronic types, and may be treated using a combination of approaches such as cognitive-behavioral therapy, sleep hygiene practices, and pharmacological interventions like benzodiazepines or hypnotics, particularly in acute or secondary insomnia cases. The pathophysiology of insomnia involves heightened arousal systems, leading to increased metabolic rate, heart rate, and levels of certain neurotransmitters, contributing to the sleep disturbances experienced by individuals with insomnia.

Insomnia is a prevalent issue among menopausal women, impacting their overall well-being and quality of life. Various studies have explored interventions to address insomnia in this population. Cognitive Behavioral Therapy for Insomnia (CBT-I) has shown effectiveness in reducing insomnia symptoms in menopausal-aged women, with improvements in sleep quality and mental health^[20]. Additionally, non-pharmaceutical interventions like reflexology, yoga, walking, and aromatherapy massage have demonstrated significant impacts on decreasing insomnia and depression in menopausal women, highlighting the positive effects of therapeutic physiotherapy modalities^[21]. Factors such as hot flashes at night have been identified as direct predictors of insomnia in menopausal women, emphasizing the importance of addressing specific symptoms to improve sleep disruptions^[22].

Risks of insomnia

Insomnia in menopausal women is influenced by various risk factors. Studies have shown that hot flashes at night are direct predictors of self-reported insomnia, while hormone concentrations do not seem to have a significant association with insomnia^[23]. Additionally, factors such as anxiety, depression, and other medical conditions like obesity, gastro esophageal reflux, and chronic pain can contribute to sleep disturbances during menopause^[24]. Furthermore, the transition into menopause can impact cardiovascular health, with insomnia potentially affecting blood pressure and heart rate profiles^[25]. Overall, the combination of hormonal changes, vasomotor symptoms, psychological factors, and social circumstances plays a crucial role in the risk of insomnia in menopausal women, highlighting the need for comprehensive and personalized approaches to treatment^[26].

How is insomnia correlated with menopause?

Insomnia and menopause are closely connected as numerous studies have highlighted this relationship. Research indicates that women post-menopause often experience insomnia due to physical, psychological, and hormonal changes, impacting their quality of life^[27]. Additionally, studies have shown that there is a significant association between perceived stress and insomnia severity in postmenopausal women, emphasizing the need for targeted interventions to improve their well-being

[28]. Furthermore, the age at menopause can also influence insomnia symptoms, with premature menopause being associated with increased insomnia in women, particularly affecting non restorative sleep [29].

Role of yoga on insomnia in menopausal women

Yoga is an effective non-pharmacological intervention for managing insomnia in menopausal women. Research indicates that yoga significantly improves sleep quality in Peri menopausal and postmenopausal women, with the strongest effects noted in postmenopausal individuals [30]. Yoga interventions have been found to decrease menopausal symptoms and improve overall health in menopausal women, contributing to a reduction in insomnia and other related symptoms [31]. Furthermore, studies have demonstrated that yoga can be beneficial in reducing anxiety levels among postmenopausal women, which is often associated with insomnia and other mental health issues during menopause [32]. Psychosocial variables, including stressful life events and social support, can also mediate the manifestation of insomnia among menopausal women [33].

Yoga module

Discussion

The randomized controlled trial demonstrated that yoga had significant positive effects on reducing menopausal symptoms and improving sleep quality across different menopause statuses. 104 Participants were randomly assigned to either the intervention or control group and those in the intervention group practiced yoga for 20 weeks. Overall sleep quality significantly improved in postmenopausal ($p < 0.001$) and perimenopausal women ($p < 0.001$) [34]. Exercise interventions can substantially improve sleep in menopausal women. The meta-analysis of randomized controlled trials (RCTs) on exercise intervention including yoga for improving sleep in menopausal women showed statistically significant effects on sleep-related outcomes, including reducing insomnia severity and alleviating sleep problems. Heterogeneity in the review suggests the need for further exploration to understand better the effectiveness of exercise interventions on sleep improvement in menopausal women [35]. Additionally, Joshi and colleagues found that by the conclusion of the study, the yoga group exhibited a notable decrease in depression scores (pre; 9.37 ± 7.28 , post; 4.36 ± 4.8) in comparison to the control group (pre; 9.37 ± 7.28 , post; 9.2 ± 6.72) [36]. Susanti *et al.* discovered that yoga had a beneficial impact on enhancing sleep quality in the intervention group (before: 5.51 ± 5.13 , after: 1.77 ± 2.73), contrasting with the control group's results (before: 5.93 ± 5.07 , after: 8.51 ± 6.49) [37]. Yoga interventions improve the quality of sleep in menopausal women. Another research took place in the Gedawang-Banyumanik region of Semarang, Central Java. A total of 22 participants were selected using purposive sampling. The study focused on sleep quality as the dependent variable and yoga as the independent variable. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI). Following yoga intervention, there was a significant decrease of 10.73 points in the score indicating poor sleep quality (95% CI = -4.30 to -0.26, $P = 0.029$) [38]. Yoga has been demonstrated to effectively reduce insomnia. The study concluded with 44 participants. Compared to the control group, those in the yoga group showed notably lower scores for climacteric symptoms and insomnia severity after treatment, along with higher scores for quality of life and stress resilience. The decrease in insomnia severity within the yoga group was significantly greater

compared to both the control group and those in the passive-stretching group [39]. The study included 52 women in the experimental group and 54 in the control group.

Over a period of 24 weeks, the experimental group participated in 60-minute yoga sessions three times per week. Following the intervention, the experimental group showed improved sleep quality, and repeated measures analysis of variance revealed significant differences in sleep quality between the two groups ($p < 0.001$) [40]. Yoga presents a promising alternative to CBT-I for chronic insomnia, offering long-term, self-manageable benefits. The study involved 21 patients who completed the intervention. While objective sleep measurements via PSG showed no significant changes following yoga practice, actigraphy indicated a reduction in arousals ($p < 0.001$). Subjective assessments indicated improvements across various questionnaires (PSQI, $p < 0.001$; HAD-A, $p = 0.020$; HAD-D, $p = 0.001$; ESS, $p = 0.041$; PS, $p = 0.010$). Additionally, a decrease in PSQI scores correlated with an increase in sleep stage N3 ($p < 0.001$) as observed in PSG analyses [41]. Another meta-analysis indicated that both low-intensity (yoga) and moderate physical activity (aerobic exercise) can enhance sleep quality, with the latter showing significant benefits specifically for aerobic exercise. Despite this, yoga has been suggested as a behavioral intervention for reducing hot flashes, which may indirectly contribute to improved sleep [42]. According to this meta-analysis, exercise interventions are recommended for menopausal women to enhance their sleep. The findings indicate that exercise intervention significantly reduces the severity of insomnia (SMD = -0.91, 95% CI = -1.45 to -0.36, $Z = 3.27$, $P = 0.001$) and helps alleviate sleep issues (MD = -0.09, 95% CI = -0.17 to -0.01, $Z = 2.20$, $P = 0.03$). However, there were no significant differences found in sleep quality between the exercise intervention and control groups (MD = -0.93, 95% CI = -2.73 to 0.87, $Z = 1.01$, $P = 0.31$). Subgroup analysis revealed that exercise interventions had more noticeable effects among women with sleep disorders compared to those without [43].

Conclusion

Moreover, non-pharmacological treatments like acupuncture and yoga are gaining recognition as viable alternatives. Yoga, specifically, has shown promise in improving insomnia among menopausal women. Multiple studies highlight its positive impact on sleep quality and menopausal symptoms across different stages. Additionally, yoga's ability to reduce anxiety levels, often associated with insomnia during menopause, further supports its therapeutic potential. In conclusion, addressing insomnia in menopausal women requires a multifaceted approach that considers the complex interplay of hormonal changes, symptom severity, and individual health profiles. Yoga emerges as a beneficial intervention, offering sustainable benefits for improving sleep quality and enhancing overall well-being during menopause. The evidence suggests that incorporating yoga into the routine of menopausal women can have a positive impact on insomnia and overall well-being, providing a holistic approach to managing sleep disturbances during this stage of life.

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