



## Review

# Chiropractic intervention in the treatment of postmenopausal climacteric symptoms and insomnia: A review



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## ABSTRACT

**Introduction:** Insomnia is a frequent postmenopausal symptom and may be due to hormonal changes, depressive states related to this period of life, hot flashes or nocturia. Chiropractic care has been demonstrated to be effective in the treatment of these symptoms.

**Objectives:** The aim of this study was to review chiropractic interventions in postmenopausal women as a possible management approach to menopausal symptoms and insomnia.

**Methods:** A PubMed search was conducted by cross-referencing the key words insomnia, sleep, and menopause with chiropractic. The search used an end date of January 2014 and retrieved 17 articles.

**Results:** Three articles were eligible for the study. All epidemiological data from large surveys demonstrated a lack of evidence for chiropractic intervention as a complementary and alternative therapeutic method in the management of menopausal symptoms and insomnia.

**Conclusions:** There is no evidence for the effectiveness of chiropractic intervention as a complementary and alternative therapy for menopausal symptoms and insomnia. Further studies with proper methodological designs are warranted.

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## 1. Introduction

Menopause is a stage of life that affects every woman around the world. However, the physical and mental impact of this physiological state inevitably varies both within and across cultures [1]. Although it is a normal biological process that begins at the last menstrual period and occurs at an average age of 51 years, women experience life change, as menopause marks the end of fertility [2]. These associated changes are both physical, with reduced functioning of the ovaries due to aging that results in lower levels of estrogen and other hormones with consequent effects on the body, and physiological, as menopausal symptoms are frequently reported by women to their doctors [1].

Sleep disorders are a common complaint among women experiencing menopause. These disorders include insomnia [3,5], poor sleep efficiency [4], sleep breathing irregularities [5,6], and hot flashes [5]. Some studies suggest that women in the transition to menopause (i.e., perimenopausal) or those who are postmenopausal have a higher frequency of sleep problems compared to premenopausal women [7,8]. The possible causes of insomnia or sleep disorders associated with menopause include symptoms of vasomotor disturbances (e.g., hot flashes or night sweats), mood disorders (anxiety and depressive states), sleep-disordered breathing [9,10] (e.g., sleep apnea), or chronic pain [11]. Stress and other factors (e.g., restless leg and periodic limb movement syndromes) may also contribute to sleep disturbances [12].

Changes in sleep architecture, particularly changes that result in the reduction of slow-wave sleep, are often accompanied by the loss of diurnal and alert functions of memory, a decrease in work performance, worsening of chronic pain, and a series of neuroendocrine changes including increased glucose intolerance and changes in the production and secretion of prolactin, of growth hormone and of cortisol [13–15].

The presence of insomnia during the menopausal transition and postmenopause may have negative social effects and may impact women's quality of life. The traditional treatment for many postmenopausal complaints including insomnia is hormone therapy (HT) [16,17], as estrogen regulates the synthesis and release of neurotransmitters and neuromodulators that affect many functions of the brain, including mood, behavior, cognition and sleep [18,19].

Studies on the effects of HT by the World Health Initiative (WHI) were suspended in 2002 after 5.2 years of follow-up when investigators observed a significant increase in coronary heart disease, breast cancer, stroke and pulmonary embolism among women who were using HT. Thus, following the publication of the main results of the WHI, patients and doctors have become more reluctant to use long-term estrogen therapy, particularly in women at high risk for cardiovascular disease or breast cancer. Subsequently, the demand for non-hormonal therapies such as non-controlled drugs, antidepressants or behavioral therapies to manage these symptoms has increased [11,20]. For postmenopausal women, the use of HT should be carefully considered with regard to other risks because the vascular side effects of hormone replacement may exceed its beneficial effects on sleep [21].

Therefore, the use of complementary and alternative (CAM) therapies is becoming more frequent with demonstrated effectiveness [22]. Massage therapy was rated by an Australian study as the most effective therapy, followed by chiropractic therapy [23].

Chiropractic care emphasizes manual therapy and includes spinal manipulation, mobilization, device-assisted spinal manipulation, heat/ice, massage, soft tissue therapies, strengthening and stretching exercises and education about modifiable lifestyle factors [24]. The most common therapeutic procedure performed by chiropractic practitioners is known as "spinal manipulation", also called "chiropractic adjustment". The purpose of manipulation is to restore joint mobility by manually applying a controlled

force to joints that have become hypomobile (i.e., restricted in their movement) as a result of a tissue injury. Manipulation or adjustment of the affected joint and tissues restores mobility, thereby alleviating pain and muscle tightness and allowing tissues to heal [25]. Chiropractic care is used most often to treat neuromusculoskeletal complaints but is not limited to joint pain and headaches [25]. In this regard, chiropractic has been shown to be effective for relieving pain [26] and stress-related conditions [27]. Massage has been recognized to decrease cortisol levels, increase serotonin and dopamine levels [28] and to reduce blood pressure [29] and heart rate [30]. Our previous studies revealed that mind-body therapies could improve sleep [31], while massage was able to decrease insomnia in a randomized controlled trial of postmenopausal women [32].

Although relaxation techniques have been found to be beneficial in reducing menopausal symptoms [33,34], no research has been conducted on the direct effect of chiropractic intervention on postmenopausal symptoms. Thus, the aim of this study was to review chiropractic interventions in post-menopausal women as a possible management approach for menopausal symptoms and insomnia.

## 2. Methods

A search for original and review articles focusing on chiropractic care, sleep and postmenopause was performed in PubMed. The search terms were "chiropractic" (MeSH), "sleep" and "menopause". The general search strategy ("chiropractic" intersected with "sleep" keywords and "menopause") retrieved 1 article. No filters were used. Next, "chiropractic" intersected with "insomnia" and "menopause" keywords did not retrieve any articles. A search using "chiropractic" intersected with "insomnia" and "climacteric symptoms" also retrieved no articles. We next searched for "chiropractic" intersected with "insomnia" and retrieved 7 articles and subsequently for "chiropractic" intersected with "menopause" and retrieved 9 articles. Two authors (VG and CF) reviewed the titles and abstracts of the retrieved studies independently against the inclusion and exclusion criteria. The inclusion criteria were as follows: women at menopause or postmenopause and having or attended a chiropractic intervention for relief of menopausal symptoms. The full-text article was read when the abstracts were unclear. All articles were restricted to abstracts in English. We also searched the reference lists of identified articles for additional papers. Secondary insomnia was not considered in this review. The cut-off date for this search was January 2014. A total of 17 original articles were identified, and 3 were eligible for inclusion in this review.

## 3. Results

There were no studies of chiropractic intervention to treat climacteric symptoms and insomnia in postmenopausal women. Table 1 depicts the evidence for chiropractic in menopausal symptoms. In summary, the three studies reported epidemiological data [22,23,35] and evaluated patients through questionnaires and the perceived effects of chiropractic care.

Newton and colleagues [22] reported the prevalence of the use of alternative therapies for menopause symptoms and the characteristics associated with their use in a self-reported survey. Among women who used CAM, 22.1% used it to treat symptoms of menopause. Chiropractic as an alternative therapy was used by 31.6% of this sample and 0.9% of the chiropractic-using subset used chiropractic for menopausal symptoms. Women who used CAM therapies for menopause symptoms were predominantly positive in their assessment of their effectiveness and nearly two-thirds favored natural approaches to managing menopause [22].

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