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AN INTEGRATIVE FRAMEWORK FOR MANAGING MENOPAUSAL INSOMNIA: A CRITICAL REVIEW OF CONVENTIONAL AND TRADITIONAL CHINESE MEDICINE INTERVENTIONS

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Abstract:

Background: Menopausal insomnia is a highly prevalent condition that significantly impairs quality of life and increases the risk for adverse health outcomes. While numerous treatments exist, they are often presented within separate therapeutic paradigms, leaving clinicians and patients without a clear, integrated management strategy.

Objective: This review critically synthesizes the evidence for both conventional Western and Traditional Chinese Medicine (TCM) interventions for menopausal insomnia to propose a comprehensive, integrative management framework.

Methods: We conducted a systematic review of the literature, focusing on meta-analyses and randomized controlled trials of pharmacological, non-pharmacological, and complementary therapies for insomnia in perimenopausal and postmenopausal women.

Findings: Conventional treatments, such as Menopausal Hormone Therapy (MHT) and certain non-hormonal medications, are effective primarily for insomnia secondary to vasomotor symptoms (VMS). Cognitive Behavioral Therapy for Insomnia (CBT-I) stands as the gold-standard first-line treatment for chronic insomnia, yet access remains a barrier. TCM offers a distinct holistic framework, addressing systemic imbalances with therapies like acupuncture and herbal medicine, which show promise for improving sleep quality and overall well-being. Notably, emerging evidence on external TCM therapies, such as aromatic herbal sachets, suggests a safe, accessible, and potentially effective modality for promoting relaxation and sleep.

Conclusion: A "one-size-fits-all" approach is insufficient for the multifactorial nature of menopausal insomnia. We conclude that an integrative model, which judiciously combines the targeted strengths of conventional medicine with the holistic and personalized strategies of TCM, offers the most effective, safe, and patient-centered paradigm. Future research should focus on rigorous, head-to-head trials of these combined modalities

Keywords: Menopause, Insomnia, Sleep Disorders, Integrative Medicine, Menopausal Hormone Therapy (MHT), Cognitive Behavioral Therapy for Insomnia (CBT-I), Traditional Chinese Medicine (TCM), Aromatherapy.

1. INTRODUCTION

The menopausal transition represents a profound biological stage in a woman's life, characterized by fluctuating hormone levels, primarily a decline in estrogen, that precipitates a range of physiological and psychological symptoms (Bagga et al., 2024). Among these, insomnia is one of the most prevalent and burdensome complaints. Meta-analyses indicate that 40-60% of menopausal women experience significant sleep disturbances, including difficulty initiating or maintaining sleep and non-restorative sleep (Salari et al., 2023; Xu & Lang, 2014). This is not a benign symptom; chronic insomnia during midlife is a significant risk factor for cardiovascular disease, metabolic dysfunction, and depression, posing a substantial challenge to long-term health and daily functioning (Thurston et al., 2024; Huang et al., 2025).

The etiology of menopausal insomnia is multifactorial. It can be a direct consequence of thermoregulatory dysfunction leading to nocturnal vasomotor symptoms (VMS), a primary sleep disorder exacerbated by hormonal shifts, or a symptom of co-occurring mood disorders like anxiety and depression (Baker et al., 2018). This complex interplay of physiological and psychological factors necessitates a nuanced and individualized approach to management.

Current treatment guidelines from Western medicine recommend Menopausal Hormone Therapy (MHT) for VMS-related sleep disruption and Cognitive Behavioral Therapy for Insomnia (CBT-I) as the first-line treatment for chronic insomnia (Qaseem et al., 2016; Stuenkel et al., 2015). In parallel, Traditional Chinese Medicine (TCM) has been used for centuries to manage menopausal symptoms through a holistic framework that seeks to rebalance the body's fundamental energies. While numerous reviews exist on these individual therapeutic modalities, there is a critical gap in the literature: a lack of synthesis that directly compares and contrasts these Western and Eastern paradigms to build a clinically useful, integrative model of care.

This review aims to bridge that gap. We critically evaluate the evidence base for both conventional and TCM interventions, moving beyond a simple summary to analyze their respective strengths, limitations, and mechanisms of action. This paper will: 1) outline the pathophysiology of menopausal insomnia from both perspectives; 2) critically review the evidence for conventional pharmacological and non-pharmacological treatments; 3) analyze the evidence for TCM modalities, including acupuncture, herbal medicine, and aromatherapy; and 4) propose an evidence-based, integrative framework to guide personalized clinical decision-making and future research.

2. PATHOPHYSIOLOGY: A DUAL PERSPECTIVE

To build an integrative framework, it is essential to understand the pathophysiology of menopausal insomnia from both Western and TCM perspectives.

2.1. The Neuroendocrine Perspective

From a conventional Western viewpoint, the primary driver is the decline in estrogen and progesterone. Estrogen is crucial for regulating neurotransmitters like serotonin and norepinephrine, which influence sleep-wake cycles. It also helps maintain a lower core body temperature at night, a key signal for sleep onset (Baker et al., 2018). Progesterone has known sedative and anxiolytic properties; its decline removes a natural sleep-promoting agent (Nolan et al., 2021). This hormonal flux disrupts the homeostatic sleep drive and circadian rhythms, often leading to the hallmark vasomotor symptoms (VMS) of hot flashes and night sweats, which cause frequent, disruptive awakenings.

2.2. The Traditional Chinese Medicine (TCM) Perspective

TCM views menopause, or “Second Spring,” as a natural decline in Kidney Essence (Jing), the foundational energy of the body that governs growth and reproduction. This decline leads to an imbalance of Yin and Yang. Healthy sleep depends on the harmonious balance of Yin (the cooling, quiet, nighttime energy) and Yang (the warming, active, daytime energy), and the anchoring of the Spirit (Shen), which is housed in the Heart. Menopausal insomnia typically arises from specific patterns of disharmony:

2.2.1. Kidney Yin Deficiency: As Kidney Yin depletes, it cannot adequately nourish the Heart Yin or control Yang, leading to a state of “Empty Heat.” This manifests as night sweats, anxiety, palpitations, and insomnia characterized by difficulty falling asleep and frequent waking (Hu et al., 2025). This pattern closely mirrors the Western understanding of VMS-induced sleep disturbance.

2.2.2. Heart-Kidney Non-Interaction: When Kidney Yin is too deficient to ascend and cool the Heart Fire, the Shen becomes agitated and restless, resulting in insomnia, palpitations, and anxiety (Maciocia, 2015).

2.2.3. Liver Qi Stagnation: Emotional stress, common during this transition, can cause Liver Qi to stagnate. This stagnant Qi can generate heat, which disturbs the Heart and the Shen, leading to irritability and dream-disturbed sleep.

3. Interventions for Vasomotor-Related Sleep Disturbance

For many women, effectively managing VMS is the most direct path to improving sleep.

3.1. Hormonal and Non-Hormonal Pharmacotherapy

Menopausal Hormone Therapy (MHT) is the most effective treatment for VMS (Stuenkel et al., 2015). By stabilizing estrogen levels, MHT directly addresses the underlying thermoregulatory dysfunction, reducing the frequency and severity of night sweats and thereby improving sleep continuity and quality (Andenæs et al., 2020). For women with contraindications or a preference to avoid hormones, several non-hormonal medications are recommended. Low-dose antidepressants, such as the SSRI paroxetine or SNRIs like venlafaxine, have demonstrated efficacy in reducing VMS (Azizi et al., 2022). Gabapentinoids, such as gabapentin, are also effective for VMS and have inherent sedative properties that can aid sleep onset and maintenance (International Menopause Society, 2024). More recently, fezolinetant, a neurokinin 3 receptor antagonist, was approved for VMS, offering

a targeted non-hormonal mechanism that has also shown improvements in sleep disturbance (Lederman et al., 2023).

4. Managing Primary Insomnia and Maladaptive Sleep Patterns

When insomnia persists independent of VMS or becomes a chronic condition, the focus must shift to addressing maladaptive thoughts and behaviors surrounding sleep.

4.1. Cognitive Behavioral Therapy for Insomnia (CBT-I)

CBT-I is the gold-standard, first-line treatment for chronic insomnia, with robust evidence supporting its efficacy in menopausal women (Qaseem et al., 2016). A meta-analysis by Moradi Farsani et al. (2021) confirmed that CBT-I significantly improves sleep efficiency and reduces wake-after-sleep onset in this population. Through its multicomponent approach—including sleep restriction, stimulus control, and cognitive restructuring—CBT-I empowers women with long-term skills to manage their sleep without medication (Ntikoudi et al., 2024). However, the high cost and limited availability of trained practitioners are significant barriers to access.

4.2. TCM Interventions for Calming the Shen

TCM offers several modalities that align with the goals of CBT-I by aiming to calm the mind and re-establish a healthy sleep-wake rhythm.

4.2.1. Acupuncture and Acupressure: Systematic reviews and meta-analyses have concluded that acupuncture can improve subjective sleep quality, reduce sleep latency, and decrease VMS-related awakenings (Chiu et al., 2016; Qin et al., 2024). By stimulating acupoints like Shenmen (HT7) and Anmian, acupuncture is thought to regulate Qi, nourish Yin, and calm the Shen, thereby promoting relaxation and sleep.

4.2.2. Chinese Herbal Medicine (CHM): Herbal formulas are prescribed based on an individual's specific TCM diagnosis. Classical formulas like Suan Zao Ren Tang (for Liver Blood and Yin deficiency) or Tian Wang Bu Xin Dan (for Heart and Kidney Yin deficiency) are frequently used to nourish Yin and Blood, clear Empty Heat, and anchor the Shen, addressing the root imbalances causing insomnia.

Table 1: Comparison of Major Treatment Modalities for Menopausal Insomnia

Treatment Modality	Key Advantages	Key Disadvantages & Barriers
Conventional Pharmacotherapy (e.g., MHT, non-hormonal meds)	Highly effective, especially for VMS-related insomnia; fast-acting.	Medical contraindications; potential side effects; may not address behavioral aspects of chronic insomnia.
Conventional Non-Pharmacotherapy (CBT-I)	"Gold standard" for chronic insomnia; addresses root behaviors; long-lasting effects without medication.	High cost; limited availability of trained practitioners; requires significant patient motivation and commitment.
TCM Internal Medicine (Prescribed Herbal Formulas)	Holistic approach; personalized to the individual's specific pattern of disharmony.	Requires diagnosis by a qualified practitioner; longer duration to see effects; potential for herb-drug interactions.
TCM External Therapies (Acupuncture, Herbal Sachets)	Generally low-risk with minimal side effects; acupuncture can address VMS and sleep; sachets are non-invasive, low-cost, and highly accessible.	Acupuncture requires a trained practitioner and time commitment; evidence for sachets specifically for menopausal insomnia needs more research.

4.3. Mind-Body Therapies

Practices like mindfulness-based stress reduction (MBSR), yoga, and tai chi combine gentle movement, meditation, and breathwork. They have been shown to improve sleep quality and psychological well-being in menopausal women by reducing the physiological and cognitive arousal that perpetuates insomnia (Hengst, 2021; Rachlin, 2024).

5. A Promising and Accessible Modality: Aromatherapy and Herbal Sachets

Aromatherapy presents a particularly promising, low-risk, and accessible intervention. In TCM, the use of aromatic herbal sachets (*xiāngnáng*) or pillows (*yàozhěn*) is a traditional external therapy. The gentle aroma is

believed to enter the body through respiration to regulate Qi, calm the Liver, and pacify the *Shen* (Hong et al., 2022).

Recent clinical trials provide growing empirical support for this traditional practice, highlighting its potential efficacy and safety across different populations and conditions.

The first study, a randomized controlled trial by Feng et al. (2023), investigated the effect of Chinese herbal sleep aid sachets on 91 elderly insomniac patients residing in nursing homes. After an 8-week intervention, the group receiving the herbal sachets demonstrated a significantly higher total effective rate of 84.8% compared to the control group's 48.9% ($p < 0.001$). The intervention group also showed statistically significant improvements in the Athens Insomnia Scale (AIS) ($p < 0.001$), Pittsburgh Sleep Quality Index (PSQI) ($p = 0.023$), and Sleep Quality Improvement Index (SQII) ($p < 0.001$). The study concluded that these sachets can effectively alleviate insomnia symptoms and enhance sleep quality in elderly residents with no reported adverse reactions, though it noted limitations such as a single-center design and a relatively short follow-up period.

The second study, by Chen et al. (2024), explored the efficacy and safety of inhaling compound sachets of Chinese herbal medicine for alleviating dysmenorrhea associated with cold coagulation and blood stasis in 100 college students. This trial demonstrated significant improvements in abdominal pain (VAS scores), menstrual symptoms (CMMS scores for both severity and duration), and reduced pain catastrophizing (PCS scores) in the experimental group compared to the control group after three menstrual cycles ($P < 0.001$ for interaction effects). With no adverse reactions reported, the study highlighted the method's safety and effectiveness in mitigating pain and symptoms. While not focused on insomnia, this research further validates the therapeutic potential and safety of this delivery method.

While neither of these studies focused specifically on a menopausal population, their findings are highly relevant. They collectively suggest that TCM-based aromatherapy could serve as a valuable, non-invasive tool for improving sleep and suggest a strong proof-of-concept for its use, making it a compelling area for future research in the context of menopausal insomnia.

6. DISCUSSION: TOWARD AN INTEGRATIVE FRAMEWORK

The management of menopausal insomnia is at a crossroads. The evidence clearly indicates that a singular therapeutic model is insufficient. A woman presenting with severe VMS causing sleep fragmentation may benefit most from MHT initially, while a woman with chronic insomnia and underlying anxiety, but minimal VMS, is an ideal candidate for CBT-I. The limitation of this siloed approach is that it fails to address the holistic experience of the patient.

This review argues for an integrative framework that judiciously combines the best of Western and Eastern approaches. Such a model acknowledges the complex, biopsychosocial nature of the menopausal transition and allows for a more personalized and holistic path to well-being. For example:

6.1. A patient on low-dose MHT to control VMS could simultaneously engage in CBT-I to address maladaptive sleep behaviors that persist.

6.2. Acupuncture could be used as an adjunct therapy to reduce the side effects of pharmacological treatments or to enhance their efficacy.

6.3. A simple, low-cost aromatherapy sachet, based on the principles of TCM, could be incorporated into a patient's nightly routine as part of sleep hygiene, promoting relaxation and acting as a conditioned stimulus for sleep.

This multi-pronged approach offers a more comprehensive, effective, and safer management paradigm. It empowers patients with a wider range of tools and acknowledges that restoring balance, whether defined as hormonal homeostasis or Yin-Yang harmony, is the ultimate goal.

7. CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

Menopausal insomnia is a prevalent and burdensome condition, but the therapeutic landscape is rich and varied. A one-size-fits-all approach is no longer tenable. The evidence strongly supports CBT-I as a first-line therapy, while recognizing the critical role of MHT for VMS. TCM offers a valuable holistic framework and a repository of promising, low-risk interventions.

To advance the clinical application of this integrative model, future research should be directed toward:

7.1. Rigorous Comparative Effectiveness Trials: Design three-arm, randomized controlled trials comparing the efficacy of TCM interventions (e.g., acupuncture, standardized herbal sachets) against both CBT-I and a placebo control in women with menopausal insomnia. Key outcomes should include both subjective measures (e.g., PSQI) and objective polysomnography data.

7.2. Mechanistic Studies: Investigate the biological mechanisms of TCM interventions. For example, research could explore how specific acupuncture protocols modulate neurotransmitter levels or how aromatic compounds from herbal sachets affect central nervous system activity.
7.3. Integrative Model Implementation Research: Develop and evaluate structured, integrative care protocols in clinical practice. Such studies should assess patient satisfaction, adherence, cost-effectiveness, and long-term health outcomes of a combined Western-TCM approach versus standard care.
By embracing an evidence-based, integrative approach, we can better support women in navigating the challenges of the menopausal transition, helping them not only to sleep better but to thrive in this new chapter of life.

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