

# Investigation of the role of herbal medicine, acupressure, and acupuncture in the menopausal symptoms: An evidence-based systematic review study

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## ABSTRACT

**Background:** Menopause is an important physiological phenomenon in women's lives. Women's concern about taking the hormone treatment to ease menopausal symptoms is increasing. Over the past decade, the use of complementary and alternative medicine for the treatment of menopausal problems instead of hormone therapy has increased. **Objective:** This study aimed to investigate the role of herbal medicine, acupressure, and acupuncture in the menopausal symptoms. **Methods:** Data source: related articles were searched from internal scientific databases and external databases of "Web of Scopus, Cochrane, PubMed, Science Direct, Ovid, and Google scholar." **Study Eligibility Criteria:** The keywords such as menopause, menopausal symptoms, complementary menopausal medicine, acupuncture in menopause, herbal medicine in menopause, and acupuncture in menopause were searched in the studies from 1987 to 2019. Exclusion criteria were inadequate information in the study, lack of access to full-text articles, animal studies, and reports. At the end of the search, 145 articles out of a total of 400 articles were reviewed. **Results:** In various studies, different herbs such as licorice, valerian, soy, sage, ginseng, etc., were used to improve menopausal symptoms. In addition, acupuncture and acupressure were used to reduce menopausal symptoms. **Conclusion:** The efficacy and use of complementary and alternative medicine, along with other classical medicine care, can be a new model for improving menopausal symptoms in women. It is recommended that further clinical and review studies be conducted to develop complementary and alternative medicine.

**Keywords:** Acupressure and acupuncture in the menopausal symptoms, herbal medicine

## Introduction

Menopause is an important physiological phenomenon in women's lives.<sup>[1]</sup> The average age of menopause is normally 50 years.<sup>[2]</sup> The population of postmenopausal women is rising

and by 2030, this population will reach one billion two hundred thousand people with an annual increase of 47 million new cases per year.<sup>[3]</sup> The most obvious symptom of this phenomenon is complete menstrual cessation for one year.<sup>[1]</sup> This period is accompanied by the gradual loss of reproductive activity and the transition to a new biological status.<sup>[4]</sup> Although menopause is a natural stage of life, many women experience many problems before and after it.<sup>[5,6]</sup> Women are often at the peak of their professional lives when they are at menopause.<sup>[5]</sup> Therefore, managing this stage of life is very important.<sup>[7]</sup> Menopause has

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many symptoms including vasomotor symptoms, psychological symptoms, musculoskeletal pain, osteoporosis, sleep problems, and genitourinary symptoms.<sup>[8,9]</sup> Vasomotor symptoms affect 80% of menopausal women.<sup>[10-12]</sup> Vaginal symptoms are a problem in one-third of postmenopausal women and persist for many years and sometimes begin several years after menopause.<sup>[13]</sup> About one-third of women experience sleep disorders during menopausal transition and 10% have symptoms of depression.<sup>[14]</sup> Hormone therapy is the most effective treatment for menopausal symptoms.<sup>[15]</sup> There is strong evidence of an increased risk of hyperplasia and endometrial cancer, breast and ovarian cancer, gall bladder cancer, thromboembolism, heart disease, stroke, pulmonary embolism, and dementia following hormone replacement therapy.<sup>[16-19]</sup> In addition, 10% of women are prohibited from taking estrogen because of some diseases and hormone therapy is used in less than 20% of cases.<sup>[20]</sup> There is a growing concern among women about the use of these methods which is one of the reasons for women's lack of tendency for hormone therapy and their tendency to use nonpharmacological methods.<sup>[21]</sup> Over the past decade, the use of complementary and alternative medicine (CAM) to treat women's problems, including menopausal problems, has increased.<sup>[22]</sup> One out of every 4 women uses complementary and nonpharmacological treatments to relieve menopausal symptoms.<sup>[23]</sup> The World Health Organization has suggested complementary and alternative medicine as ways to improve menopausal symptoms and increase the sense of well-being in women.<sup>[24]</sup> Complementary medicines used in menopause include mind-body practices (such as hypnosis, meditation, aromatherapy), natural products (such as herbs, vitamins, dietary supplements, and minerals), traditional Chinese medicine, reflexology, acupuncture, acupressure, and homeopathy.<sup>[3,25]</sup> The aim of this study was to investigate the effects of herbal medicine, acupressure, and acupuncture on menopause symptoms.

## Methods

### Evaluation protocol

We reviewed published articles from 1987 to 2019 on the impact of herbal therapy, acupuncture, and acupressure on menopausal symptoms based on the PRISMA flow diagram for better evaluation.<sup>[26]</sup>

### Information sources

In this review study, related articles were searched from internal scientific databases and external databases of "Web of Scopus, Cochrane, PubMed, Science Direct, EBSCO, Medline, Ovid, and Google scholar."

### Eligibility criteria

The main search terms included the keywords of menopausal symptoms, complementary medicine, acupuncture, herbal therapy, and acupressure in menopause in studies from 1987 to 2019. The articles were then categorized according to the type of study and clinical applications. The study inclusion criteria were

case-control studies, review articles, cohort articles, pilot studies, and clinical trials published in English and Farsi, menstruation over the past 12 months, no medical illnesses performed during the study, and not receiving any specific treatment during the study. If there were several reports from one study, the most complete study was considered. The STROBE checklist with 22 items was used to evaluate the quality of the observation articles. The main items of the checklist were title, summary, introduction, method, findings, and discussion. Of the 22 total scores, at least 16 were considered for acceptance of the paper in the analysis. Finally, the information about each article was extracted based on the present study. The study exclusion criterion was the assessment of the quality of articles by CONSORT scale.<sup>[27]</sup> Besides, other exclusion criteria included were irrelevant research studies, inadequate data in the study, lack of access to full text of articles, editorial studies, and reports.

### Study selection and data collection process

Articles were evaluated in two stages; the process of reviewing articles was that the first researcher read the articles individually and the information for each article was recorded in the table. The same reassessment was done by the second researcher. In the second step, the full text of the criterion-based articles was selected and if the researcher disagreed during the joint meeting, the final table was completed. The articles were then categorized by study type and clinical applications. Finally, information about each article was extracted based on the present study.

## Results

Based on the search strategy, 400 articles were found in the first stage, 96 articles because of repeatability and 159 articles because of the lack of inclusion criteria were deleted. Then, from which 145 met the criteria for entry into the present review. Based on the findings of these studies, the various aspects of complementary medicine in menopause [Figure 1].

### Evidence of the effectiveness of herbal medicine in reducing menopausal symptoms

One of the most popular and common ways to improve menopausal symptoms is the use of herbs. In the United States and the United Kingdom, 80% of postmenopausal women use herbal medicine, and 60% to 70% believe that these supplements eliminate their problems and are safe without side effects.<sup>[28]</sup> Phytoestrogens or plant estrogens are nonsteroidal.<sup>[29]</sup> Phytoestrogens include flavones, lignans, and coumestans.<sup>[2]</sup> The presence of phytoestrogens and phyto progesterones in the medicinal plants and the antiandrogenic effects of these plants reduce the conversion of testosterone to dihydrotestosterone and also increase the conversion of testosterone and androstenedione to estrogen in peripheral tissues which can reduce menopausal symptoms.<sup>[2]</sup> Numerous studies have shown that regular consumption of phytoestrogens in the diet of Asian women has led to a decrease in menopausal symptoms.<sup>[30]</sup> Many medicinal plants have been used to improve

the symptoms of menopause [Tables 1-3]. On the other hand, in some studies, researchers found findings conflicting with other studies and acknowledged the ineffectiveness of some herbs in reducing menopausal symptoms [Table 4].

### Acupuncture for reducing menopausal symptoms

Acupuncture is a Chinese medical intervention that involves placing small metal needles in specific areas of the body.<sup>[97]</sup> It is not yet clear how this method works but it is widely accepted

as a safe treatment.<sup>[98]</sup> In traditional Chinese medicine, it is said that acupuncture reduces pain and cures symptoms by regulating meridian energy (Qi). On the other hand, modern Western medicine has investigated the mechanism of acupuncture based on changes in neurological, physiological, and hormonal neuronal activities.<sup>[99]</sup> Some studies show that acupuncture increases endorphin activity. Therefore, it modulates thermoregulation in the hypothalamus and neutralizes temperature in patients with vasomotor syndrome.<sup>[100]</sup> Acupuncture reduces hot flashes and

**Table 1: Evaluation of the mechanism of effects and herbs effective in reducing menopausal symptoms**

Scientific name of the plant	Effective material	Mechanism of effect	Type of study	Source
<i>Soya (Glycine max)</i>	Contains isoflavones, genistein, daidzein, glycine, <sup>[31]</sup> and Lecithin <sup>[32]</sup>	Reduce hot flashes. <sup>[31]</sup> High-dose soy lecithin (120 mg /day) increases energy, decreases diastolic blood pressure, and cardiovascular and wrist index in middle-aged women. <sup>[32]</sup> Soya isoflavone reduces cardiovascular disease risk index. <sup>[33]</sup> Soya isoflavone improves menopausal symptoms. <sup>[34]</sup> Soya isoflavone increases bone mineral density in postmenopausal women. <sup>[35]</sup>	Randomized, double-blind, placebo-controlled. <sup>[31,32]</sup> Double-blind randomized parallel. <sup>[33]</sup> Pilot study. <sup>[34]</sup> Double-blind, single-blind, placebo-controlled clinical trial. <sup>[35]</sup>	[31-35]
<i>Vitex agnus-castus</i>	Vitex contains phytoestrogens, proximity to opioid receptors, and the ability to increase melatonin secretion <sup>[36]</sup>	Reduces menopausal disorder, anxiety, and vasomotor disorder. <sup>[36]</sup>	Randomized, double-blind, placebo-controlled. <sup>[36]</sup>	[36]
Passion flower	Increases serotonin levels and monoamine oxidase control <sup>[37]</sup>	Reduces early menopausal symptoms (vasomotor symptoms, insomnia, depression, anger, headache). <sup>[37]</sup>	Clinical-experimental study. <sup>[37]</sup>	[37]
<i>Hypericum perforatum</i>	Increases serotonin levels and monoamine oxidase control <sup>[37]</sup>	Reduces early menopausal symptoms (vasomotor symptoms, insomnia, depression, anger, headache). <sup>[37]</sup>	Clinical-experimental study. <sup>[37]</sup>	[37]
Flaxseed	Rich source of ligands, omega-3 fatty acids, and fiber <sup>[38]</sup>	Reduce the risk of cardiovascular disease in postmenopausal women by lowering LDL-C and total cholesterol. <sup>[38]</sup> Reduce Menopausal Symptoms. <sup>[39]</sup> Reduce hot flashes. <sup>[40]</sup>	Interventional study. <sup>[38]</sup> Placebo-controlled randomized clinical trial. <sup>[39]</sup> Meta-analysis review study. <sup>[40]</sup>	[38-40]
Valerian	Contains phytoestrogens <sup>[41,42]</sup>	Reduce hot flashes. <sup>[41,42]</sup> Reduce symptoms of Sleep Disorders. <sup>[43,44]</sup>	Clinical trial, triple-blind, randomized, placebo-controlled. <sup>[41,44]</sup> Placebo-controlled randomized clinical trial. <sup>[43]</sup> Randomized, double-blind, and placebo control. <sup>[42]</sup>	[41-44]
<i>Melissa officinalis</i>	GABA Neurotransmitter Inhibitors <sup>[45]</sup>	Reduce symptoms of sleep Disorders. <sup>[45]</sup>	Placebo-controlled randomized clinical trial. <sup>[43]</sup>	[45,43]
Licorice	Contains Phytoestrogens <sup>[46]</sup>	Reduce hot flashes. <sup>[47,48]</sup>	Double-blind randomized clinical trial. <sup>[47]</sup> Randomized, double-blind, placebo-controlled trial. <sup>[48]</sup>	[46-48]
Anise	Contains Phytoestrogens <sup>[49]</sup>	Reduce hot flashes. <sup>[49]</sup>	Placebo-controlled randomized clinical trial. <sup>[49]</sup>	[49]
<i>Salvia officinalis</i>	Contains Phytoestrogens, <sup>[50]</sup> Benzodiazepine GABA complex connection, receptors in the brain <sup>[51]</sup>	Reduce hot flashes. <sup>[51,52]</sup>	Pilot study. <sup>[51]</sup> Controlled clinical trial. <sup>[52]</sup>	[50-52]
<i>Medicago sativa</i>	Contains isoflavonoids And have phytoestrogenic properties <sup>[53]</sup>	Reduce hot flashes and night sweats. <sup>[52]</sup>	Controlled clinical trial. <sup>[52]</sup>	[52,53]

**Table 2: Evaluation of the mechanism of effects and herbs effective in reducing menopausal symptoms**

Scientific name of the plant	Effective material	Mechanism of effect	Type of study	Source
Black Cohosh	Phytoestrogenic properties. <sup>[54]</sup> Estrogen receptor modulators and effects of dopaminergic, serotonergic, and progestogenic and rich source of gamolenic acid (a precursor of prostaglandin E) <sup>[55]</sup>	Reduce sleep problems and vasomotor disorders. <sup>[56]</sup> Reduce the severity of hot flashes. <sup>[55]</sup> Reduce vasomotor symptom. <sup>[57]</sup>	Clinical trial, double-blind, randomized, placebo-controlled. <sup>[56,57]</sup> Randomized clinical trial. <sup>[55]</sup>	[54-57]
Evening primrose oil	Source of unsaturated fatty acids. <sup>[55]</sup> Source of Omega 6 Fatty Acids. <sup>[58]</sup> The exact mechanism of action is not well understood. <sup>[59]</sup>	Reduce the severity of hot flashes. <sup>[55,59]</sup>	Randomized clinical trial. <sup>[55]</sup> Placebo-controlled randomized clinical trial. <sup>[59]</sup>	[55,58,59]
Hop ( <i>Humulus lupulus</i> )	Contains 8-Perenylnarangine (8-PN) is the strongest phytoestrogen known to date. <sup>[60]</sup>	Reduce hot flashes. <sup>[60]</sup> Reduce early Symptoms of menopause and hot flashes. <sup>[61]</sup>	Systematic review and meta-analysis. <sup>[60]</sup> Placebo-controlled randomized clinical trial. <sup>[61]</sup>	[60,61]
Ginkgo	Contains Phytoestrogenic properties. <sup>[62]</sup>	Increases libido in postmenopausal women, facilitates blood flow, affects nitric oxide systems, and has a relaxing effect on smooth muscles. <sup>[62]</sup> Improves memory and mental flexibility. <sup>[63,64]</sup>	Trial triple-blind, randomized, placebo-controlled. <sup>[62]</sup> Randomized double-blind, placebo-controlled. <sup>[63,64]</sup>	[62-64]
Wild yam	Contains DOI <sup>1</sup> protein for the treatment of menopausal syndrome. <sup>[65]</sup>	Improves the status of sex hormones, fats, and antioxidants, which may reduce the risk of breast cancer and cardiovascular disease in postmenopausal women. <sup>[66]</sup> Low impact on menopausal symptoms. <sup>[67]</sup>	Clinical trial study. <sup>[66]</sup> Randomized double-blind, placebo-controlled. <sup>[67]</sup>	[65-67]
Gin seng	Contains Phytoestrogenic properties. <sup>[68]</sup> Ginsenosides in ginseng have various biological and pharmacological activities. <sup>[69]</sup>	Improve sexual function and arousal and improve hot flashes. <sup>[70]</sup> Improve sexual function and quality of life and reduce menopausal symptoms and enhance menopausal women's health. <sup>[68]</sup> Reduce oxidative stress by increasing antioxidant enzyme activity in postmenopausal women. <sup>[69]</sup> Improvement of menopausal symptoms and reduce the risk of cardiovascular disease. <sup>[71]</sup> antidepressant. <sup>[72]</sup>	Review study. <sup>[70]</sup> Randomized, double-blind, placebo-controlled. <sup>[68,69,71]</sup> Clinical trial. <sup>[72]</sup>	[68-72]

1 - Dioscorea opposita Thunb. A novel protein, designated as DOI, isolated from the Chinese yam (*Dioscorea opposita* Thunb), DOI is an acid - and thermo-stable protein with a distinctive N - terminal sequence

regular temperature control by increasing beta-endorphin levels and inhibiting GnRH secretion.<sup>[101-104]</sup> The beneficial effects of acupuncture on reducing menopausal symptoms have been reported [Table 5].

### Evidence of the use of acupressure in reducing menopausal symptoms

Acupressure as one of the branches of complementary and alternative medicine is a method that can be practiced by physicians, midwives, nurses, or even patients themselves.<sup>[121]</sup> Acupressure is a noninvasive and safe technique, a form of traditional therapy skill where the fingers are used to press certain key points on the skin.<sup>[121]</sup> Chinese believe that the human body has a network of energy channels that resemble the vascular and circulatory systems. In this network, there are 12 major pathways called meridian, several communication

pathways, and 361 acupressure points that have high directional power and affect one's health when a problem arises.<sup>[122]</sup> At the beginning of the creation of such treatment, the researchers believed that the effects were only due to their psychological effects but with further investigation and better understanding of the mechanism of the procedure, it became clear that the effects of acupressure were much greater and deeper than the purely psychological effects.<sup>[123]</sup> Acupressure balances vital energy by releasing neurotransmitters and hormones which consequently improves the early complications of menopause.<sup>[124]</sup> The effects of acupressure on menopausal symptoms have been proven [Table 6].

### Discussion

Most menopausal women are looking for a safe alternative to hormone therapy due to its side effects.<sup>[129]</sup> Among the methods

**Table 3: Evaluation of the mechanism of effects and herbs effective in reducing menopausal symptoms**

Scientific name of the plant	Properties of plants	Mechanism of effect	Type of study	Source
<i>kava</i>	Contains analgesic and relaxing properties. <sup>[73]</sup>	Reduce menopausal anxiety. <sup>[73]</sup>	Placebo-controlled clinical trial. <sup>[73]</sup>	[73]
<i>Urtica dioica</i>	Nettle contains many micronutrients and active ingredients such as phenols, vitamins (A, B2, B5), and minerals (calcium, potassium, magnesium, iron), and contains phytoestrogenic compounds. <sup>[74]</sup>	Reduce hot flashes. <sup>[74]</sup>	Double-blind, controlled, randomized clinical trial. <sup>[74]</sup>	[74]
<i>Trigonella foenum</i>	Contains hormone modulating activity. <sup>[75]</sup> Contains Phytoestrogenic properties. <sup>[76]</sup>	Reduce the severity of hot flashes, night sweats, and menopausal symptoms. <sup>[75]</sup>	Double-blind, randomized, placebo-controlled clinical trial. <sup>[75]</sup>	[75,76]
<i>Hypericum perforatum</i>	Phytoestrogenic properties. <sup>[77]</sup>	Reduce the severity of hot flashes. <sup>[77,78]</sup> Reduce sleep problems. <sup>[78]</sup>	Placebo-controlled randomized clinical trial. <sup>[77,78]</sup>	[77,78]
Red clover	Contains isoflavonoids. <sup>[79,80]</sup>	Reduce vasomotor symptoms. <sup>[79]</sup> Improve vaginal atrophy. <sup>[81]</sup> Reduce the severity of hot flashes. <sup>[80,82]</sup> Reduce the severity of menopausal symptoms. <sup>[83]</sup>	Parallel, double-blind, randomized, placebo-controlled trial. <sup>[79]</sup> Review and meta-analysis study. <sup>[80,81]</sup> Clinical trial, double-blind, randomized, placebo-controlled. <sup>[83]</sup> Clinical trial, randomized, placebo-controlled. <sup>[82]</sup>	[79-83]
Chromile	Flavonoid compounds may have anti-anxiety and antidepressant properties. <sup>[84]</sup>	Reduce sleep disturbance. <sup>[85]</sup>	Randomized clinical trial, double-blind. <sup>[85]</sup>	[84,85]
<i>Nigella sativa</i>	It has antioxidant activity, immune modulatory, antibacterial, blood pressure lowering, protective effects on the liver with antidiabetic effects. It also produces eicosanoid generation in leukocytes and membrane lipid peroxidation. <sup>[86]</sup> Contains hypolipidemic effects. <sup>[87]</sup>	Improve the balance between oxidants and antioxidants in the blood of postmenopausal women. <sup>[86]</sup> Improve lipid profile. <sup>[87]</sup> Improve lipid profile and blood glucose as well as hormone levels that have important effects on the pathogenesis of metabolic syndrome in menopause, have therapeutic and protective effects on menopause. <sup>[88,89]</sup>	Clinical trial. <sup>[86]</sup> Randomized clinical trial, double-blind. <sup>[87]</sup> Randomized clinical trial, placebo-controlled. <sup>[88,89]</sup>	[86-89]
<i>Alium sativum</i>	It has antioxidant activity, has steroid glycosides, contains vitamins B1, B2, B6, C and E; biotin, nicotinic acid; fatty acids; glycolipids; essential phospholipids and amino acids; It has antibacterial, antitumor, anti-inflammatory, antithrombotic, and anticholesterol properties. <sup>[86]</sup>	Improve the balance between blood oxidants and antioxidants in postmenopausal women. <sup>[86]</sup>	Clinical trial. <sup>[86]</sup>	[86]

of complementary and alternative medicine, we can mention herbal medicine, acupuncture, and acupressure for the treatment of menopausal symptoms.<sup>[68,119,121]</sup> Various studies have shown a high tendency of women for complementary therapies and herbal medicines.<sup>[2]</sup> In this study, 25 herbal medicines effective in menopausal symptoms were studied. The results showed that herbal therapy reduced hot flashes, increased bone mineral density, improved sleep quality, reduced vasomotor symptoms, improved metabolic disorders, reduced risk of osteoporosis and hypertension, increased libido, improved memory and mental flexibility, improved sexual function and life quality, promoted health, prevented Alzheimer's, controlled weight gain, treated hyperlipidemia, reduced psychological symptoms, improved vaginal atrophy, and generally reduced menopausal symptoms in women. Phytoestrogens are compounds found in many of the plants investigated in this study that exhibit estrogenic

and in some cases antiestrogenic properties.<sup>[130]</sup> The function of these herbal chemicals in bonding with estrogen receptors in human body cells is so similar to natural hormones that must be considered as one of the tricks of human evolution in taking advantage of nature.<sup>[131]</sup> The estrogenic power of these compounds is estimated to be one thousandth to one ten-thousandth of Estradiol but it has no adverse effects like that of synthetic estrogens.<sup>[132]</sup> Different types of phytoestrogens include isoflavones, flavonoids, coumestans, and lignans.<sup>[133]</sup> Phytoestrogens reduce the symptoms of menopause and the risk of cardiovascular disease, osteoporosis, and breast and endometrial cancers.<sup>[134]</sup> Asian women experience fewer menopausal symptoms during menopause than Western women due to a diet high in phytoestrogens.<sup>[135]</sup> In Japan, for example, the daily amount of phytoestrogens intake is estimated as 200 mg. As a result, the rates of hormones and osteoporosis-related cancers



**Table 4: Ineffective of plants in reducing menopausal symptoms**

Scientific name of the plant	Mechanism of effect	Type of study	Source
<i>Soya</i> ( <i>Glycine max</i> )	Soya drinks have no effect on the mood of postmenopausal women. <sup>[90]</sup>	Clinical trial. <sup>[90]</sup>	[90]
Flaxseed	Supplementation of flaxseed has no effect on lowering cholesterol and increasing bone mineral density in postmenopausal women. <sup>[91]</sup>	Clinical trial, a randomized, double-blind, placebo-controlled. <sup>[91]</sup>	[91]
Black Cohosh	According to this review study, has no clinical efficacy. <sup>[92]</sup>	Review study. <sup>[92]</sup>	[92]
Ginkgo and Ginseng	The combination of Ginkgo and Ginseng has no effect on mood and other menopausal symptoms. <sup>[93]</sup>	Clinical trial, a randomized, double-blind, placebo-controlled. <sup>[93]</sup>	[93]
Dong Quai	No effect on hot flashes. <sup>[94]</sup> No effect on vasomotor symptoms. <sup>[95,96]</sup>	Clinical trial, a randomized, double-blind, placebo-controlled. <sup>[94-96]</sup>	[94-96]

**Table 5: The effects of acupuncture use on menopausal symptoms**

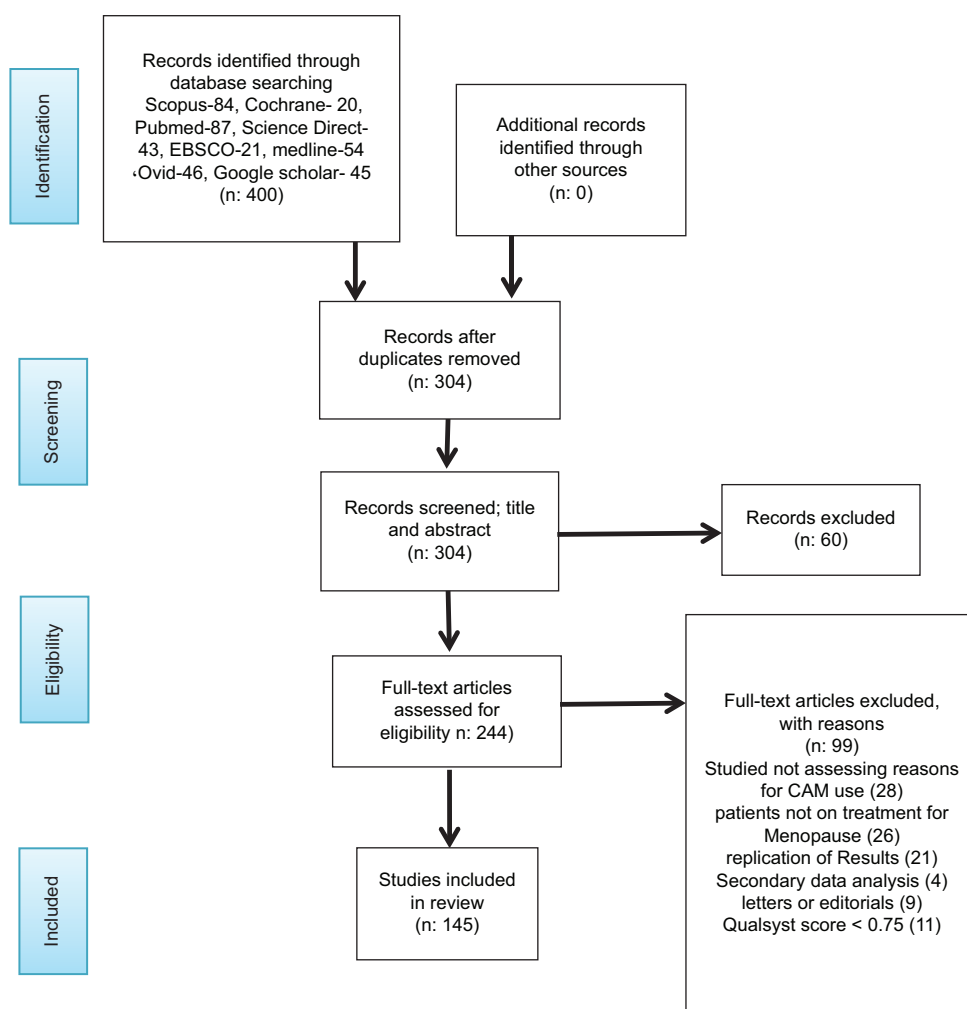
Purpose of the study	Type of study	Result	Source
The effect of acupuncture on body and ear on sleep quality in postmenopausal women	Randomized controlled clinical trial. <sup>[105]</sup>	Improve the quality of sleep. <sup>[105]</sup>	[105]
The effect of acupuncture on menopausal symptoms	Clinical Trial. <sup>[106]</sup> Randomized controlled clinical trial. <sup>[107]</sup> Meta-analysis study. <sup>[108]</sup>	Reduce menopausal symptoms. <sup>[106-108]</sup>	[106-108]
The effect of acupuncture ratio on alprazolam on sleep quality in postmenopausal women	Randomized Clinical Trial. <sup>[109]</sup>	The effect of alprazolam was more than that of acupuncture. <sup>[109]</sup>	[109]
The effect of acupuncture on menopausal vasomotor symptoms	Systematic review study. <sup>[110]</sup>	Reduce vasomotor symptoms. <sup>[110]</sup>	[110]
Comparison of the effect of manual and electrical acupuncture on menopause	Randomized Clinical Trial. <sup>[111]</sup> Randomized clinical trial, single-blind, and controlled. <sup>[112]</sup>	Significant decrease in depression and anxiety symptoms in both groups. <sup>[111,112]</sup>	[111,112]
The effect of acupuncture on symptoms of hot flashes and menopause in patients with breast cancer	Systematic review and meta-analysis. <sup>[99]</sup>	Reduce menopausal symptoms and no effect on hot flashes. <sup>[99]</sup>	[99]
The effect of acupuncture on the treatment of dry eye disease in postmenopausal women	Randomized clinical trial. <sup>[113]</sup>	Improve dry eye. <sup>[113]</sup>	[113]
The effect of laser acupuncture on postmenopausal metabolic syndrome	Randomized controlled clinical trial. <sup>[114]</sup>	Improve metabolic syndrome. <sup>[114]</sup>	[114]
Comparison of the effect of acupuncture and acetazolam on sleep quality in postmenopausal women	Randomized clinical trial. <sup>[115]</sup>	Acupuncture has better effect on menopausal insomnia than acetazolam. <sup>[115]</sup>	[115]
Comparison of the effect of acupuncture and diazepam on severity of irritability in postmenopausal women	Clinical trial. <sup>[116]</sup>	The effect of acupuncture on reducing irritability is more than diazepam (2.5 mg). <sup>[116]</sup>	[116]
The effect of acupuncture on hot flashes in postmenopausal women	Randomized clinical trial. <sup>[25]</sup>	Reduce hot flashes. <sup>[25]</sup>	[25]
The effect of acupuncture on hot flashes, menopausal complications, and sleep quality of postmenopausal women	Meta-analysis. <sup>[117]</sup>	Improves hot flashes, reduces menopausal symptoms, and enhances quality of life. <sup>[117]</sup>	[117]
The effect of acupuncture on mood and quality of sleep	Randomized, 2-group clinical study. <sup>[118]</sup>	Improves sleep quality and menopausal symptoms. <sup>[118]</sup>	[118]
The effect of acupuncture on vasomotor symptoms and quality of life in postmenopausal women	Randomized clinical trial. <sup>[119]</sup>	Reduce vasomotor symptoms and improve quality of life. <sup>[119]</sup>	[119]
The effect of acupuncture on hot flashes and quality of life in postmenopausal women	This study involved a multicenter, pragmatic, randomized, controlled trial with two parallel arms. <sup>[120]</sup>	Reduces hot flashes and enhances quality of life. <sup>[120]</sup>	[120]

and hot flashes in Japanese women are lower than the women in other parts of the world.<sup>[132]</sup> Herbs such as valerian, black cohosh, chamomile, *Hypericum perforatum*, licorice, anise, soya, red clover, *Vitex-agnus castus*,<sup>[136]</sup> and sage<sup>[133]</sup> are phytoestrogenic and have been recommended for the treatment of menopausal

symptoms. Although most studies indicated the positive effects of therapeutic herbal interventions on menopausal symptoms, a number of studies showed that some herbs had no effect on menopausal symptoms.<sup>[90-96]</sup> The reason for these discrepancies may be due to differences in sampling methods, low sample

**Table 6: The effects of acupressure use on menopausal symptoms**

Purpose of the study	Type of study	Result	Source
The effect of acupressure on early menopausal complications	Blind random clinical trial and placebo-controlled. <sup>[121]</sup>	Reduce menopause complications. <sup>[121]</sup>	[121]
The effect of acupressure on sleep quality in postmenopausal women	Single-blind randomized clinical trial. <sup>[125]</sup> Double-blind randomized clinical trial. <sup>[126]</sup>	Improve sleep quality. <sup>[125,126]</sup>	[125,126]
The effect of acupressure on hot flashes in postmenopausal women	Clinical trial. <sup>[25]</sup> Randomized clinical trial through purposive sampling. <sup>[127]</sup>	Improve hot flashes and menopausal symptoms. <sup>[25,127]</sup>	[25,127]
The relationship of subjective sleep quality and cardiac autonomic nervous system in postmenopausal women with insomnia under auricular acupressure	A pretest/posttest study. <sup>[128]</sup>	Increases the parasympathetic activity of the heart and decreases the sympathetic activity of the heart which can improve sleep quality. <sup>[128]</sup>	[128]



**Figure 1: Flowchart of the inclusion of studies in the review<sup>[26]</sup>**

numbers, concealment, incomplete data usage, and prescribing procedures. Although medicinal herbs have fewer side effects than drug therapy,<sup>[174]</sup> they may also have some side effects. Reports indicate that Black cohosh side effects are rare, mild, and reversible. Gastrointestinal problem is the most common side effect of this plant.<sup>[137]</sup> Headache, dizziness, and vomiting may occur in high doses.<sup>[138,139]</sup> Allergic skin reactions, skin problems, and neurological symptoms have also been reported in the use of kava.<sup>[140]</sup> Kava may interfere with other anxiolytics;

there is a reported case of Kava interfering with alprazolam.<sup>[141]</sup> Kava was associated with liver damage and removed from the market of Canada and several countries in Europe.<sup>[142]</sup> On the other hand, long-term use of ginseng may lead to hypertension, edema, diarrhea, skin rashes, insomnia, depression, and amenorrhea.<sup>[141]</sup> It also causes nervousness, dizziness, and uterine bleeding and some effects on liver enzymes.<sup>[69]</sup> A case of suspected drug interference of Dong quai with Warfarin has also been reported.<sup>[141]</sup> The use of *Hypericum perforatum* has been

associated with gastrointestinal complications and headaches. *Vitex agnus-castus* consumption has also been associated with headaches and dizziness.<sup>[143]</sup> Another branch of complementary and alternative medicine is acupuncture.<sup>[99]</sup> Acupuncture is used to treat menopausal symptoms as a complementary and alternative therapy without serious side effects.<sup>[113]</sup> We examined 18 acupuncture studies. Studies showed that acupuncture improved sleep quality, decreased vasomotor symptoms, reduced symptoms of depression and anxiety, improved dry eye and sleep disturbances, improved metabolic syndrome, reduced irritability and hot flashes, enhanced quality of life, and reduced menopausal symptoms. In one study, the effect of acupuncture compared with alprazolam on sleep quality in postmenopausal women was investigated and the results showed a greater effect of alprazolam.<sup>[109]</sup> In another study, the effect of acupuncture compared with diazepam on the irritability of postmenopausal women was investigated in which the results indicated a greater effect of acupuncture than diazepam tablets.<sup>[116]</sup> Acupressure is another branch of complementary and alternative medicine.<sup>[128]</sup> In this study, 6 clinical trials were studied. The results showed that acupressure improved sleep quality, hot flashes, and reduced menopausal complications in postmenopausal women. The function of acupressure is unknown but studies have shown that by pushing acupressure points, myelinated nerve fibers are activated and send messages to the spinal cord. This activates three neural centers of the spinal cord, middle brain, and hypothalamic-pituitary axis.<sup>[144]</sup> In the case of hot flashes, for example, it has been hypothesized that an increase in endorphin hormone during acupressure modulates hypothalamic temperature regulation. Peptide levels, associated with the calcitonin gene, a potent vasodilator released during flushing, decrease during acupressure therapy. In addition, in some studies, this treatment may increase the level of plasma hormones such as estradiol during and after acupressure therapy.<sup>[144]</sup> Limitations of this study included focusing on published articles in English and limited studies of complementary medicine including herbal therapy in the world, except in some countries. In addition, due to the interventional nature of herbal medicine, acupuncture, and acupressure, the risk of bias might occur in the studies and affect the results of the studies. Further studies should be conducted with careful blinding methods to provide further evidence of the effectiveness of these interventions. To better understand the impact of complementary medicine interventions on menopausal symptoms, more systematic review studies and meta-analyses should be performed for clinical trial evaluations.

## Conclusion

There are many complementary medicine methods to improve menopausal symptoms and it is difficult to determine which method has more beneficial therapeutic benefits. Hence, patients interested in complementary medicine treatments should talk to their healthcare providers about the value and potential implications of it. Some herbal medicines have some side effects. Therefore, they should be used with caution. However, many herbs are either without side effects or have very minor

side effects; thus, some herbal medicines that have been proven to be effective can be used to improve menopausal symptoms. Acupuncture and acupressure are also beneficial treatments with no side effects to improve menopausal symptoms.

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## Conflicts of interest

There are no conflicts of interest.

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