Complementary and Alternative Medicine for Menopause

Alisa Johnson, PhD[^1], Lynae Roberts, MA[^1], and Gary Elkins, PhD[^1]

Abstract
Menopause is associated with problematic symptoms, including hot flashes, sleep problems, mood disorders, sexual dysfunction, weight gain, and declines in cognitive functioning. Many women seek complementary and alternative medicine (CAM) for symptom management. This article critically reviews the existing literature on CAM treatments most commonly used for menopausal symptoms. Electronic searches were conducted to identify relevant, English-language literature published through March 2017. Results indicate that mind and body practices may be of benefit in reducing stress and bothersomeness of some menopausal symptoms. In particular, hypnosis is a mind-body intervention that has consistently shown to have a clinically significant effect on reducing hot flashes. Evidence is mixed in regard to the efficacy of natural products and there are some safety concerns. Health care providers should consider the evidence on CAM in providing an integrative health approach to menopausal symptom management.

Keywords
complementary and alternative medicine, hot flashes, menopause, symptoms, review

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Menopause occurs naturally in most women between ages 45 and 52 years and is marked by changes in hormonal status and the cessation of the menstrual cycle.[^1,2] Approximately 1.2 billion women worldwide will be menopausal or postmenopausal by the year 2030, with 47 million new entrants each year.[^3] More than 85% of these women will experience problematic symptoms, including hot flashes, night sweats, sleep disturbances, sexual dysfunction, mood disorders, weight gain, and cognitive declines.[^1,4]

Vasomotor symptoms (VMS; eg, hot flashes and night sweats) are the primary symptoms of menopause. VMS affect more than 80% of women in menopause and are the menopause symptoms for which most women seek treatment.[^5] In the United States, 40 to 50 million women suffer from VMS.[^6] These symptoms typically last 5 to 7 years, but can persist for 15 years or more.[^7,8] VMS are associated with sleep and mood disturbances, as well as decreased cognitive function and reduced quality of life.[^5]

Hormone therapy has been the primary treatment for menopausal symptoms. However, because of the health risks associated with hormone therapy, many women cannot or choose not to use hormone therapy.[^9-11] Approximately 51% of women use CAM and more than 60% perceive it be effective for menopausal symptoms.[^9] However, the majority of women using CAM do not discuss it with their health care providers.[^9]

Women often report feeling confused about their options and rely on the internet as their primary source of information.[^11,12] It is imperative that physicians engage in shared decision making with women regarding treatment options, including CAM, for menopausal symptoms. This type of patient-centered integrated approach can potentially reduce the risk for under treatment and adverse events.

The purpose of this article is to critically review the most popular CAM interventions for menopausal symptoms. CAM interventions for menopause fall into 2 broad categories: mind-body practices (eg, hypnosis, cognitive behavioral therapy [CBT], relaxation, biofeedback, meditation, and aromatherapy), and natural products (eg, herbs, vitamins, minerals, and dietary supplements). In addition, there are several whole system alternative medicine approaches (eg, traditional Chinese medicine, reflexology, acupuncture, and homeopathy) that do
Methods

Literature Search

Literature sources were identified from an electronic search of the following databases: MEDLINEplus, HealthSource: Nursing/Academic, PsycINFO, PsycARTICLES, PubMed, and Cumulative Index of Nursing and Allied Health Literature and (CINAHL) and a hand search of references of relevant papers. Search terms included complementary and alternative medicine, CAM, menopause, menopausal symptoms. In addition, specific CAM treatments and menopausal symptoms were searched. The search terms were customized for each database to optimize results.

Study Eligibility

All resulting abstracts were reviewed independently by 2 authors (AJ and LR) to determine if the articles met the inclusion criteria. The full texts of the studies meeting eligibility requirements were retrieved.

Inclusion Criteria

This critical review included randomized controlled trials (RCTs) with a sample size of at least 10 (including randomized pilot studies), or systematic reviews, that were published in the English language, in peer-reviewed journals on or before March 31, 2017 that reported on complementary and alternative medicine for menopause symptoms. Observational, uncontrolled, nonrandomized, or case studies were not considered in this critical review.

Interventions

Complementary and alternative medicine has been categorized as mind-body practices (eg, hypnosis, CBT, relaxation, biofeedback, meditation, aromatherapy), natural products (eg, herbs, vitamins, minerals, dietary supplements), and whole-system approaches (eg, traditional Chinese medicine, reflexology, acupuncture, homeopathy).13 Trials that investigated at least one of these interventions for menopausal symptoms were included.

Outcome Measures

Studies that included symptoms of menopause (eg, vasomotor, depression, sleep disturbance) as the primary outcome were included. The most commonly investigated menopausal symptoms are vasomotor symptoms (eg, hot flashes, hot flushes, night sweats). This is not surprising since vasomotor symptoms are one of the most commonly investigated menopausal symptoms.25,26

Mind-Body Interventions for Menopause Symptoms

Hypnosis

Hypnosis, a mind-body therapy that involves a deeply relaxed state of focused attention, individualized mental imagery, and suggestion,17 has been investigated for menopausal symptom management. Two randomized clinical trials of 5 sessions of hypnotherapy for hot flashes among breast cancer survivors demonstrated a clinically meaningful (≥69%) reduction in hot flash severity and frequency.18,19 These results are comparable to pharmacological interventions.20 In an RCT of 187 women,21 hypnosis was compared with an active structured attention control and found to significantly reduce subjective hot flash frequency (74%) and interference (80%), and physiologically monitored hot flashes (57%). In addition, hypnosis improved self-reported sleep quality and sexual function.21,22

In a recent pilot study,23 71 women were randomized to 1 of 4 groups: venlafaxine 75 mg + hypnosis, venlafaxine 75 mg + sham hypnosis, placebo pill + hypnosis, and placebo pill + sham hypnosis. Hypnosis alone was as effective (50% reduction) as venlafaxine 75 mg alone in reducing hot flash score (frequency × severity). The placebo group reported a 25% reduction. Hypnosis has been recommended by the North American Menopause Society, and others, for the treatment of menopausal symptoms and poses little risk.24,25

Cognitive Behavioral Therapy

CBT is an action-oriented psychological intervention that has been used to treat hot flashes, depression, and other menopausal symptoms. CBT is a time-limited treatment that focuses on changing cognitive appraisals and behavior choices to alter symptoms. CBT may include education, motivational interviewing, relaxation, paced breathing, and other strategies to improve symptoms.26 Mann et al26 compared the effects of a 6-week CBT intervention to usual care (eg, standard follow-up care) among 96 female breast cancer survivors and found hot flash interference was reduced on average 52%. Women receiving usual care reported a 25% decrease in hot flash interference. Hot flash frequency was reduced by 38% in both groups, 38% indicating CBT was no better than usual care for reducing the frequency of hot flashes.26 In a second RCT, 65% of women receiving a 4-week CBT intervention and 21% of a no-treatment control group, reported clinically significant improvements (eg, 2-point change on a 10-point numerical rating scale) in hot flash interference.27 CBT did not demonstrate a clinically significant reduction (eg, 50%) in hot flash frequency.27 Both of these trials used objective and subjective measures for hot flash frequency.26,27

In a pilot study of 39 women randomized to CBT or waitlist control, there was a statistically significant reduction in hot flash distress, but not in interference or frequency of hot flashes/night sweats, in the immediate treatment group.28 The authors reported a 48% positive treatment effect for the 17 women who completed the CBT program, but it is unclear how
that effect was calculated. In addition, there is some evidence to suggest that CBT may reduce mild depression in menopause comparable to placebo. To date, no RCTs of CBT have demonstrated clinically significant improvements in hot flash frequency, but may be beneficial in reducing hot flash distress and interference and other psychological symptoms (e.g., depression) associated with menopause. CBT has been recommended by the North American Menopausal Society for reducing the bothersomeness of vasomotor symptoms, but not for frequency.

**Biofeedback and Relaxation Training**

Biofeedback and relaxation techniques may include progressive muscle relaxation, relaxation combined with thermal control biofeedback training, paced respiration, at-home relaxation audiotapes, and applied relaxation, and have been used to treat menopausal symptoms. Biofeedback uses a device to monitor bodily functions that are normally automatic (e.g., skin temperature, heart rate, or muscle tension) and provides “feedback” to the patient. Feedback and relaxation techniques (e.g., guided imagery, deep breathing, and paced respiration) are then used to control stress responses. In a systematic review of psychoeducational interventions to relieve hot flashes, reviewers identified 7 randomized trials that compared relaxation with an active (e.g., reading, α-electroencephalography, hormone therapy) or no-treatment control. Five of the trials reviewed indicated relaxation techniques (e.g., paced respiration, progressive muscle relaxation) may reduce the frequency of hot flashes and improve psychological symptoms of menopause. However, the authors caution about drawing conclusions due to the low study quality and small sample sizes. In a second systematic review and meta-analysis of relaxation techniques for menopausal symptoms, 4 studies (2 of which were included in the previous review), were identified that compared relaxation with a control (e.g., no treatment, placebo, superficial needling) for the reduction of menopausal symptoms. Researchers concluded that relaxation techniques may have a positive benefit on vasomotor symptoms and stress, yet due to low-quality evidence and inconsistent findings, relaxation techniques could not be recommended at this time. Because of the considerable overlap in studies reviewed, effect sizes are not reported.

Three RCTs not reported in the above systematic reviews also indicate inconsistent support for relaxation techniques on menopause symptoms. In a recent RCT comparing applied relaxation with wait-list control, women receiving immediate treatment reported a 55% reduction in hot flash frequency at 12 weeks. However, findings from a second RCT comparing paced respiration with music listening among 123 women, did not indicate clinically significant improvements in hot flash frequency for either intervention. A third RCT comparing paced breathing with regular breathing (control) found all groups reported reductions (paced breathing 2×/day = 52%; paced breathing 1×/day = 42%; usual breathing = 46%) in hot flashes over 9 weeks. Relaxation may provide benefit for menopausal symptoms, yet more evidence is needed to draw conclusions.

**Mindfulness-Based Stress Reduction**

Mindfulness-based stress reduction (MBSR) uses a variety of exercises (e.g., acceptance, mindfulness meditation, and yoga) to develop awareness and acceptance of the present moment. MBSR usually involves 8 weekly group classes lasting 1.5 hours each, an all-day weekend retreat, and daily at-home practice. To our knowledge, only 1 RCT of MBSR for menopause has been conducted. A total of 110 women were randomized to either MBSR intervention or wait-list controlled and measured on hot flash bothersomeness, hot flash intensity, quality of life, anxiety, and stress. Changes in hot flash bothersomeness and intensity failed to show clinically significant improvements. However, there was a clinically meaningful improvement (1.0) in menopause-related quality of life and sleep quality. Perceived stress and anxiety resumed normative values in the MBSR group following treatment. MBSR is generally safe and may reduce stress and anxiety and improve sleep quality and quality of life, but does not appear to significantly reduce VMS. More research is needed to verify these effects.

**Yoga**

Yoga originates from Hindu disciplines, but many different forms of yoga have appeared as the popularity has grown globally. Because of a branching off of many different styles, yoga practices can vary (e.g., intensity level, temperature of the session, specific props used). All practices generally involve physical poses or movement sequences, conscious regulation of breathing, and mindfulness techniques to increase present awareness or positivity.

A systematic review and meta-analysis including 5 RCTs concluded that there was moderate evidence for the short-term effects of yoga on psychological symptoms in menopause. However, there was no evidence found for the improvement of VMS, somatic, urogenital, or total menopausal symptoms and the reviewers caution that more rigorous studies are needed to support the evidence for yoga on psychological menopausal symptoms.

Additional RCTs have been conducted that indicate yoga maybe beneficial for psychological symptoms and fatigue related to menopause. However, the evidence to support the use of yoga for other menopausal symptoms is inconsistent. Among 40 women randomized to either a 12-week yoga and meditation intervention or usual care, Cramer et al found that yoga significantly (P < .05) reduced menopause symptoms (Menopause Rating Scale), improved fatigue, and quality of life compared with usual care. Reed and colleagues found that VMS, sexuality, and total scores on the Menopausal Quality of Life Questionnaire (MENQOL) were statistically significantly improved in the yoga group compared with usual activity (P < .05). In contrast, an RCT comparing yoga with
exercise or usual activity did not show improvements in VMS frequency or bother from baseline to endpoint in the intervention groups.\textsuperscript{55}

There is high variability between studies assessing the use of yoga for various ailments, which makes conclusions about efficacy difficult. These inconsistencies are mostly because of the branching off of many yoga types which vary in the level of importance given to the spiritual and physical elements of yoga.\textsuperscript{46} The consensus from the compilation of research seems to be that yoga is safe and may be effective for psychological symptoms. More research is needed to determine its effects on VMS and other menopausal symptoms.

**Aromatherapy**

Aromatherapy, also referred to as essential oil therapy, uses naturally extracted aromatic essences from plants to treat various physiological and psychological imbalances. The scented oils are believed to reduce anxiety and increase relaxation, which may be beneficial in easing stressful menopausal symptoms.\textsuperscript{36}

Chien and colleagues\textsuperscript{56} found 12 weeks of lavender inhalation to improve self-reported sleep compared with health education control. In a double-blinded 12-week clinical crossover trial of 100 women, lavender essential oil reduced hot flash frequency by 50\% compared with <1\% reduction in the placebo (diluted milk) control, demonstrating a clinically significant difference.\textsuperscript{57} Three additional RCTs\textsuperscript{58-60} of aromatherapy combined with massage, found aromatherapy massage to be more beneficial than massage alone or a control in reducing physical (eg, VMS) and psychological (eg, depression) symptoms.

The addition of aromatherapy to other CAM interventions may provide additional symptom relief. However, there is insufficient evidence to support aromatherapy as a stand-alone treatment for menopausal symptom management.

**Herbal Products, Vitamins, and Supplements**

**Black Cohosh (Cimicifuga racemosa)**

Black cohosh, is a widely studied phytopharmaceutical North American plant that has been used historically as an indigenous treatment for menopausal symptoms. The rhizome is harvested in fall and may be used in fresh or dried form. Multiple RCTs have been conducted to determine the effects of *Cimicifuga racemosa* on menopausal symptoms. In a systematic review\textsuperscript{61} of 16 RCTs\textsuperscript{52-57} (n = 2027) that measured the effects of oral monopreparations of *C racemosa* on menopausal symptoms, including VMS, sexual dysfunction, vulvovaginal symptoms, bone health, and quality of life, researchers concluded that there was insufficient evidence to support the use of black cohosh for menopausal symptoms at this time, but that there was sufficient evidence to warrant further investigations.\textsuperscript{61}

Among the studies included there was no significant difference between the intervention and placebo in the frequency of hot flashes or in menopausal symptom scores. The reviewers concluded that because of large study heterogeneity, pooling of the results was not possible and that more high-quality RCTs were necessary before recommending *C racemosa* for menopausal symptoms.\textsuperscript{61}

In an RCT comparing isopropanolic black cohosh extract in combination with ethanolic St John’s wort with placebo among 301 women, scores on the Menopause Rating Scale decreased by 50\% in the treatment group compared to 19\% in the placebo group.\textsuperscript{78} Depression also significantly decreased compared with placebo, $P < .001$.\textsuperscript{78} In a second RCT comparing the effects of black cohosh plus St John’s wort (GYNO-Plus), scores on the Kupperman Index showed significant improvements ($p < .001$) in the treatment group compared with placebo.\textsuperscript{79} However, it is difficult to conclude from these studies if black cohosh is beneficial in itself or only in combination with other herbs. More research is needed using standardized preparations. Side effects of black cohosh may include: gastrointestinal problems, rash, and acute hepatitis.\textsuperscript{12,17,61}

**Wild Yam (Diascorea)**

Wild yam is a tuber that has been historically used in traditional Chinese medicine to treat multiple symptoms, including symptoms of menopause.\textsuperscript{80} However, there is limited and inconsistent evidence for the effects of wild yam on menopause symptoms. In a double blind, placebo controlled, cross-over study, wild yam cream was no better than placebo in reducing menopause symptoms, or improving levels of estrogen or progesterone.\textsuperscript{81} In contrast, a RCT of 50 women consuming 12 mg of *Dioscorea alata* (ie, purple yam) extract twice daily reported significant improvements (90\%) in menopause symptoms (primarily psychological) compared with the placebo group (70\%) as measured by the Greene Climacteric Scale.\textsuperscript{82} The authors note that sexual functioning symptoms did not show the same levels of improvement.\textsuperscript{82} Because of the small number of studies and insufficient information regarding long-term safety,\textsuperscript{83} more research is needed in order to determine the efficacy of wild yam for menopause symptoms.

**Dong Quai (Angelica sinensis)**

Dong quai is a traditional Chinese herb that is most often used in combination with other herbs to treat female reproductive problems.\textsuperscript{84} It is extracted from the root *Angelica sinensis* and administered in herbal preparations. In an RCT investigating the effects of Dong quai on vaginal cells, endometrial thickness, and menopausal symptoms among 71 women, Dong quai was not superior to placebo for the reduction of menopausal symptoms (including VMS) and did not show any estrogenic effects in endometrial tissues or vaginal cells.\textsuperscript{85} In an RCT comparing a combined preparation of *A sinensis* and *Matricaria chamomilla* (ie, Climex), to placebo among 55 women reporting hot flashes and refusing hormone therapy, the herbal preparation demonstrated clinically significant improvement in the frequency and intensity of hot flashes (90\%-96\%) compared with placebo (15\%-20\%) over the 3-month trial.\textsuperscript{36} In a double-blind, placebo-controlled RCT, *A sinensis* was
combined with other herbs (ie, black cohosh, milk thistle, red
clover, American ginseng, chaste-tree berry; Phyto-Female
Complex), and tested among 50 healthy women. At 12 weeks,
participants receiving the herbal preparation reported a 73% 
decrease in hot flushes and a 69% decrease in night sweats,
compared with 38% and 29% improvement in the placebo
group, respectively.87 The treatment group also reported
greater improvements in sleep quality.87 However, it is difficult
to determine the effects of A sinensis from these 2 trials due to
the use of combined preparations. Dong quai may be effective
only in combination with other herbs. In addition, important
safety concerns exist regarding A sinensis, including interac-
tions with other medications and herbs, photosensitization,
anticoagulation, and possible carcinogenicity.24,88 Further
investigations into the efficacy and safety of Dong quai are
needed.

**Maca (Lepidium meyenii)**

Maca, a plant native to South America, of the brassica family
has been used for centuries in Andean cultures as a treatment
for anemia, infertility, and female hormone balance. A recent
systematic review89 found 4 RCTs90-92 (2 were contained in 1
publication,91 [n = 202], testing the effects of maca in healthy
women during various stages of menopause. Three studies used
pregelatinized maca,91,92 and 1 study used dried maca.90 All
studies employed a placebo control for comparison. Each of
these trials indicated favorable effects of maca on menopausal
symptoms as measured by the Greene Climacteric Scale and
the Kupperman Index compared with placebo. However, the
reviewers concluded that despite initial evidence for the bene-
fits of maca, findings were limited by the small number of trials
and lack of safety information. More data are needed to deter-
mine the efficacy and safety of maca for menopausal symptoms.

**Pollen Extract**

Pollen extract, made from flower pollen and sold under the
brand names Serelys, Femal, Femalen, and Relizen, has not
been sufficiently tested to determine efficacy or safety. One
small RCT of pollen extracts for menopause symptoms was
identified.93 Fifty-four women randomized to either Femal or
placebo completed the 12-week trial. Menopause symptoms
were measured using the Menopause Rating Scale and diaries.
Women taking Femal reported a 22% (Menopause Rating
Scale) and 27% (diary) reduction in hot flashes at 12 weeks.
The placebo group reported a 4% increase in frequency of hot
flashes at 12 weeks. Though there were superior improvements
for the active treatment group in all symptom categories (eg,
VMS, tiredness, dizziness, mood, quality of life), these
improvements did not reach clinical significance.93 An animal
study of Femal has indicated that the extract does not act estrogen-
ically and could be a safe alternative to hormone therapy.94
However, more studies are needed to clarify the effectiveness
of pollen extract for menopausal symptoms.

**Evening Primrose Oil (Oenothera biennis)**

Evening primrose oil (EPO), the oil from the seed of the
evening primrose plant, contains essential omega-6 fatty
acids and has been used to treat multiple inflammatory
diseases and women’s health conditions. In an RCT com-
paring the effects of EPO to placebo on VMS, Chenoy
et al95 reported that 4 g/d of EPO for 6 months was no
better than placebo for reducing hot flushing. There were
no significant improvements demonstrated in either group.95
In a recent RCT comparing 500 mg of EPO daily to placebo
on VMS, hot flash frequency was reduced by 39% (EPO)
and 32% (placebo) after 6 weeks. Hot flash severity and
duration decreased by 42% (EPO) and 32% (placebo) and
19% (EPO) and 18% (placebo), respectively. While the
differences between EPO and placebo were statistically
significant, improvements in the treatment group were not
clinically meaningful.96 Two RCTs97 have been conducted
to investigate the effects of EPO on bone mineral density
loss in premenopause and post menopause. Both groups of
participants (pre- and postmenopause) were randomized to
receive EPO (4.0 g) in combination with marine fish oil
(440 mg) and calcium (1.0 g) (ie, Efocal) compared with
calcium (1.0 g) alone. All participants, irrespective of treat-
ment or menopause phase, showed significant increases
(1%) in bone mineral density. The supplement Efocal was
not significantly better than calcium alone for increasing
bone mineral density.97 There is not enough evidence to
support the use of EPO for menopausal symptoms at this
time.

**Phytoestrogens**

Phytoestrogens are nonsteroidal plant-derived compounds
commonly sourced from soy and red clover (isoflavones), flax-
seed (lignans), and hops (Humulus lupulus). Phytoestrogens are
thought to act estrogenically or anti-estrogenically in
humans.98,99 Soy and red clover contain large amounts of the
isoflavones genistein and daidzein that may produce estrogen
like effects. Hops contain the phytoestrogen 8-
prenylnaringenin (8-PN), which is thought to be a more potent
phytoestrogen than soy isoflavone.100,101 In a systematic
review and meta-analysis102 of phytoestrogens for VMS among
peri- and postmenopausal women, researchers identified 43
RCTs, including one unpublished trial, that tested the effect-
iveness of dietary soy,103-115 soy extracts116-126 (Bicca et al.,
unpublished data), red clover extracts,127-134 genistein ex-
tracts,135-138 natural S-Equol,139 flaxseed,140 Rheum rha-
ponticum extract,141 and hop extract,142 for at least 12
weeks.102 The majority of studies were too heterogeneous to
be combined in the meta-analysis. Of the 43 RCTs, 5 trials
investigating the effects of red clover extract (Promensil) on
VMS127,131-134 were pooled for the meta-analysis. Results indi-
cated that red clover extract did not significantly improve VMS
symptoms compared to placebo. The authors of this review
concluded that the evidence was did not support the use of
phytoestrogens to reduce the frequency or severity of VMS at the time, but did recommend further investigation of genistein for menopausal symptoms. 102

In a recent RCT (not included in the previous review102), women administered dried red clover leaves (40 mg) for 12 weeks reported significant improvements in menopausal symptoms (10-point mean reduction on the Menopause Rating Scale), compared with placebo.143 Other RCTs of phytoestrogens show mixed results. In an RCT of 102 women receiving 12 months of isoflavones compared with placebo, there were no significant reductions in hot flashes over the course of the study.144 Participants in both groups (isoflavones and placebo) reported increases in hot flashes.144 In addition, Van Patten et al145 found that 12 weeks of isoflavones (90 mg) did not show clinically meaningful improvements in hot flash frequency. Among the 64 breast cancer survivors receiving isoflavones, there was a 25% reduction in hot flash frequency compared with the 33% reduction reported in the placebo group (n = 59).145 Two RCTs investigating the effects of isoflavones to placebo did not demonstrate isoflavones to be superior to placebo in reducing scores on the Kupperman Index.146,147 In contrast, an RCT comparing the effects of isoflavones to placebo among 51 women did demonstrate a clinically meaningful reduction of hot flashes (57%) after 6 months of treatment (60 mg) compared with placebo (18%).148 Phytoestrogens appear to be safe for 12 months of continuous use,102 yet the evidence to support efficacy is inconsistent. Therefore, more RCTs using standardized methods that will allow for study comparison are needed in order to draw definitive conclusions regarding the use of phytoestrogens for menopausal symptoms.

**Vitamin E**

Vitamin E is a fat-soluble vitamin thought to act as an antioxidant in the body. There are anecdotal accounts of the benefits of vitamin E for menopausal symptoms. However, few RCTs have been conducted to investigate the use of vitamin E for menopause symptom reduction. In a crossover trial of 120 women receiving 800 IU of vitamin E followed (4 weeks) by placebo (4 weeks) or vice versa,149 participants reported a decrease of 1 hot flash per day with vitamin E. The authors concluded this was not a clinically meaningful difference.149 In a similar randomized crossover trial, 50 women taking 400 IU of vitamin E followed by placebo or vice versa for 4 weeks each, participants showed a reduction of about 2 hot flashes per day and reduced hot flash severity with vitamin E.150 In an RCT comparing the effects of gabapentin to vitamin E among 115 women for VMS reduction, hot flash frequency and score decreased by 10.02% and 7.28%, respectively in the vitamin E group.151 At this time there is an insufficient amount of empirical evidence to conclude the effectiveness of vitamin E supplementation for menopausal symptoms.

**Whole System Alternative Medicine Approaches**

**Reflexology**

Reflexology is a specific type of massage performed on the feet and hands that is believed to stimulate corresponding glands and organs. The principle behind reflexology states that there are reflex points on the hands and feet that correspond to certain body zones, and when pressure is applied to these points, disease-causing energy blockages are eliminated from the corresponding body zone.

Only 2 RCTs have examined the use of reflexology for menopausal symptoms. Both studies compared reflexology with a nonspecific foot massage control. Williamson and colleagues152 found no significant differences between nonspecific foot massage and reflexology on symptoms of anxiety, depression, and VMS. However, in a more recent RCT of 120 women randomized to reflexology or nonspecific foot massage control, VMS, and sexual dysfunction symptoms (MENQOL) were significantly improved among women receiving foot reflexology compared to control (P < .001).153 Hot flash frequency reduced by 56% after 12 twice-weekly reflexology sessions.153

Because of the small number of RCTs and inconsistent findings, more research is needed to determine the efficacy of reflexology for menopausal symptoms.

**Homeopathy**

Homeopathic practitioners (homeopaths) subscribe to the principle that “like cures like.” Patients are given dilutions of natural substances that would be harmful to a person in ideal health. Some commonly used preparations include sepia (from cuttlefish ink), lachesis (from venom of the South American Bushmaster), and pulsatilla (from a flower of the same name).154 Individualized formulas are prepared to treat presenting symptoms.155

One study (n = 223)156 found homeopathy may be beneficial in reducing distress in climacteric years. However, a review of homeopathic approaches for menopause showed no convincing evidence for the efficacy of homeopathy in menopause.155 The National Health Interview Survey157 found that almost 5 million adults and children used homeopathy for various reasons in the previous year, so this is a therapy that needs to be evaluated further for efficacy and safety.

**Acupuncture**

Acupuncture techniques come from traditional Chinese medicine and involve insertion of small needles into the skin at certain points on the body, which are called acupoints. The foundation of acupuncture is a belief that diseases and symptoms occur because of disruptions in an individual’s qi, or life force energy.

There have been several RCTs of traditional acupuncture for various menopausal symptoms, some of which are noted in the
section on traditional Chinese medicine because of their combination with additional modalities. Four trials found no significant difference between acupuncture and placebo of superficially placed needles or needling at non-acupoints. One study found that an acupuncture plus auricular acupuncture intervention was not significantly better than a hormone replacement control at improving hot flash severity. Six trials showed that acupuncture could improve vasomotor, sleep, or somatic symptoms more significantly than placebo.

An additional acupuncture technique that has been studied for use in menopause is electroacupuncture, which includes the passing of a small electrical current between acupuncture needles. Three trials assessed the use of electroacupuncture. One study found significant improvements in mood only. Two studies found no significant difference from placebo.

More research with precise methods is needed to uncover the true efficacy and the mechanisms behind the benefit some participants receive from acupuncture.

**Traditional Chinese and East Asian Medicine**

Traditional Chinese medicine can include the use of herbs, self-massage, acupuncture, diet, or meditative exercise (e.g., Tai Chi). What ties these modalities together is the ancient technique and tenets of qi (life force energy) and yin and yang (harmony between opposite forces) behind their use.

A trial using a Chinese herbal medicine formula found that compared to placebo control, herbal treatment significantly improved hot flash frequency. However, hot flash reduction was larger in a third hormone replacement group. Two trials reported no significant difference between hormone replacement therapy and Chinese herbs in reducing self-report VMS, anxiety, and depression. Another study using Japanese traditional medicine found greater improvement in VMS and psychological symptoms for a Paroxetine control than with herbal treatment.

Grady and colleagues found that an herbal extract was significantly more effective than placebo at improving VMS frequency, VMS severity, and sexual functioning. Wiklund et al reported significant improvement in depression or QOL over placebo, but no difference for VMS. Other trials reported that Chinese herbs were significantly more effective than placebo at improving self-report menopause symptom improvement, tension, and insomnia, but no improvement of self-report hot flashes specifically.

One RCT used acupuncture paired with traditional Chinese medicine (diet therapy and Tuina self-massage) and found that this combination significantly improved hot flash frequency, irritability, and sleep problems from baseline to endpoint and significantly greater than a waitlist control. Several RCTs found no significant difference between Chinese medicinal herbs and placebo in hot flash severity, hot flash frequency, sleep quality, or menopause related quality of life.

While there is some evidence that traditional Chinese medicine can be effective in relieving menopausal symptoms, there are mixed findings overall. In addition, the heterogeneity among studies makes drawing conclusions difficult. As is the case for many other CAM modalities, it is inherently difficult to conduct controlled research of a treatment that is focused on individualization and techniques based on ancient beliefs. Patterns explaining which modalities work best for which symptoms remain unclear.

**Author Perspectives**

Existing research indicates that mind-body interventions such as relaxation, mindfulness, and CBT therapy can reduce stress and bothersomeness associated with menopausal symptoms. Hypnosis intervention for hot flashes has been shown to result in a clinically significant reduction (i.e., 50% or more) in hot flashes and associated symptoms. However, hypnosis for hot flashes is not widely available, thus limiting accessibility. Mind-body interventions have few negative side effects and seem to provide safe treatment options worthy of consideration. The effects and safety of herbal preparations is difficult to ascertain due to large variations in the RCTs that have been conducted. Investigations of standardized herbal preparations may provide a path for better understanding their effects and safety. There are no herbal treatments that have demonstrate consistent clinically meaningful benefits for menopausal symptoms. This lack of consistent evidence may not be due to the ineffectiveness of the treatments, rather it may indicate the need for more rigorously conducted RCTs regarding each of these modalities on menopausal symptoms. Some CAM interventions show promise (e.g., aromatherapy, acupuncture, reflexology), but lack empirical support due to the limited number of studies. Health care decisions regarding CAM therapies for menopausal symptoms can be informed by existing scientific evidence for effectiveness and safety.

There are limitations to this critical review and need to be taken into account. Though we chose to include many CAM modalities and populations (e.g., various stages of menopause, cancer and natural menopause), we acknowledge that this is not an exhaustive review of all CAM options. In addition, the broad scope and study design (e.g., critical review) may make drawing conclusions difficult, but it does provide the reader with a good indication of the most promising interventions and areas where more research is needed. Because the study was not a systematic review, we were unable to include effect sizes for each intervention. We did report clinical significance where available. Finally, only studies published in English were included, which may have limited the number studies reviewed. However, this review provides an overview of the available evidence and areas of need regarding multiple CAM interventions for menopause.

**Recommendations for Future Research**

More high-quality RCTs are needed for each CAM intervention. Among herbal products (e.g., black cohosh, phytoestrogens), RCTs of standardized preparations given in consistent...
methods would allow for more systematic reviews and meta-analyses of these interventions. Hypnosis is a mind-body intervention that has been shown to reduce the frequency and bothersomeness of menopausal symptoms. Future research is needed to determine optimal delivery of effective self-hypnosis training in order to achieve wider dissemination. In addition, the use of standardized protocols for other CAM interventions (eg, yoga, acupuncture) would allow for the pooling of results for meta-analyses. Researchers should consider potential mechanisms action in regard to improvements in VMS and other menopausal symptoms. Higher quality studies with larger populations are needed to determine efficacy and safety among all reviewed CAM interventions for menopausal symptoms.

Conclusions
CAM interventions for menopause, including mind-body practices, herbal products, and other whole system alternative medicine approaches are commonly used to treat menopausal symptoms. Not all CAM interventions are efficacious and safe. It is important for women to be informed about the risks and benefits of CAM for menopausal symptoms. Women view health care providers as the most reliable sources of information on CAM interventions, but seldom seek their guidance in choosing CAM.11

Mind and body practices including hypnosis and CBT have been demonstrated to be safe for treating some of the most common and problematic symptoms of menopause (eg, vasomotor, sexual dysfunction, sleep regulation). Other mind and body practices (biofeedback, MBSR, relaxation techniques) may reduce stress and improve quality of life for women transitioning through menopause, but have not shown efficacy for specific menopausal symptoms. Hypnosis has consistent evidence for clinically significant reduction of hot flashes. However, trained practitioners are not widely available, thus limiting its use.

Herbal products are frequently used. However, there is no consistent evidence to support their efficacy and safety. There is the added concern that when used in combination with other medications, some herbal products could pose serious health risks. Vitamins and minerals may be important for women who are at risk for deficiencies, but do not seem to reduce menopausal symptoms. Physician-initiated discussions of CAM with women transitioning through menopause will help to promote an integrative model of care that will ensure the highest level of patient care.

Author Contributions
AJ and LR conducted the literature search and data extraction. AJ wrote the first draft of the manuscript. AJ, LR, and GE contributed to the writing of the manuscript. AJ, ER, and GE agree with manuscript results and conclusions. AJ, ER, and GE made critical revisions and approved the final version. All authors reviewed and approved the final manuscript.

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