

Complementary Medicine Interventions for Maternal Fatigue: A Systematic Review

Maryam Abedi¹, Shahrbanoo Salehin^{2*}, Elahe Amirkhalili^{3,4}

¹Student Research Committee, School of Nursing and Midwifery, Shahrood University of Medical Sciences, Shahrood, Iran.

²Sexual Health and Fertility Research Center, Shahrood University of Medical Sciences, Shahrood, Iran.

³Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran.

⁴Students' Scientific Research Center, Tehran University of Medical Sciences, Tehran, Iran.

*Correspondence to: Shahrbanoo Salehin (E-mail: drbsalehin@gmail.com)

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Abstract

Objective: This systematic review aimed to identify and categorize complementary medicine interventions used in the management of maternal fatigue.

Methods: Following the PRISMA guidelines, we systematically searched electronic databases (e.g., ScienceDirect, Scopus, PubMed, Web of Science, Google Scholar, Cochrane Library, as well as Persian databases such as SID and Magiran) to identify studies on complementary medicine interventions for maternal fatigue published from 2000 to 2024. The systematic search yielded 300 records, with 15 studies meeting the eligibility criteria for synthesis. The JBI critical appraisal tool was used to evaluate the methodological quality. Due to high heterogeneity, a meta-analysis was not feasible; instead, a narrative synthesis was conducted.

Results: Of the 15 included studies, 10 were clinical trials and 5 utilized quasi-experimental designs. In total of 1,581 women were enrolled across pregnancy and the postpartum period. Interventions were categorized into biologically based practices and manual body-based methods. The JBI assessment indicated a moderate risk of bias in most studies.

Conclusion: Complementary medicine methods may improve sleep quality and reduce fatigue in mothers. However, these methods should be applied cautiously, as some approaches may overlook underlying maternal conditions contributing to fatigue. To confirm efficacy and safety, larger-scale studies targeting specific populations are needed. Additionally, future research should investigate the integration of complementary medicine into standard care and assess the long-term effects.

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Keywords: Fatigue, complementary therapies, postpartum, prenatal

Introduction

Many women report fatigue as a common occurrence during motherhood.¹ Around 64% of new mothers experience fatigue in the postpartum.^{1,2} Research has highlighted that fatigue encompasses physical, emotional, and cognitive dimensions.^{3,4} The occurrence of postpartum fatigue is significant, influencing maternal and infant care,⁵ with its prevalence differing across nations.⁵ Based on the existing data in the Netherlands, 18% of women indicated feelings of fatigue at one year postpartum,⁶ and 82% at three months postpartum in South Korea.²

Factors affecting postpartum fatigue include primiparity, advanced maternal age,³ cesarean section,⁷ poor sleep quality,³ anemia,⁸ infection, and thyroid disease.⁹ Moreover, postpartum fatigue may increase the risk of depression, anxiety, and sleep problems.⁹ The results of studies show that postpartum depression can be prevented by managing postpartum fatigue.^{10,11}

Therefore, it is very important to consider to maternal fatigue and use effective approaches to reduce it.¹² Approaches to reduce postpartum fatigue can be very effective in improving the physical and mental health of mothers.¹³ Fatigue management is more accepted by mothers and their families than psychotherapy, and can be the first step in helping women appropriately treat psychological issues.¹¹

To date, several studies have investigated a range of interventions aimed at managing and minimizing maternal fatigue.^{11,14} Interventions, such as different forms of exercise, educational and counseling programs, and complementary

medicine interventions, are used to reduce maternal fatigue.⁹ However, using approaches that are safe for mothers and babies is a priority.¹⁵ The use of complementary medicine methods due to being inexpensive and non-invasive interventions that are easy to apply is very popular in midwifery.¹⁶ Existing studies indicate the implementation of various complementary medicine interventions, such as energy therapy, yoga, music therapy, and massage during pregnancy and postpartum.^{17,18} These methods are based on general principles such as improving the body's energy flow, reducing stress, and increasing relaxation.⁹ Studies show that these methods can improve the quality of life for mothers after childbirth.¹⁹

The effects of complementary medicine have recently received much attention in research and clinical care, but the results of some studies indicate different results of complementary medicine interventions for mothers.⁹ Some studies have shown that Pilates and PMR can effectively reduce complaints in pregnant women,²⁰ and aromatherapy also plays an important role in reducing fatigue.²¹ In the study by Effati the use of lavender cream and foot bath had no significant effect on lowering postpartum fatigue.²²

Given the high prevalence of postpartum fatigue and its negative effects on maternal and neonatal health, identifying safe interventions is crucial. Although numerous studies have examined complementary medicine, constraints such as limited sample sizes and brief follow-up durations, and methodological heterogeneity restrict the generalizability of findings. These limitations make the results of existing studies not

fully generalizable and suggest the need for a comprehensive systematic review to summarize the available evidence. According to the gap in available information, this systematic review aimed to identify and categorize complementary medicine interventions used in the management of maternal fatigue.

Materials and Methods

This systematic review adheres to the guidelines established by the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA). This systematic review was registered on the International Prospective Register of Systematic Reviews (PROSPERO) under the registration number CRD420244224.

Search Strategy

The study focuses on interventions to reduce women's fatigue during pregnancy and postpartum. We reviewed Persian and English language studies published between 2000 and 2024. The studies were searched using the databases of Science Direct, Scopus, PubMed, Web of Science (WOS), Google Scholar, Cochrane Library, and Persian databases of SID, Magiran to find relevant sources. Keywords for the search were chosen from the Medical Subject Headings (MeSH) Database and included: postpartum fatigue, perinatal fatigue, maternal fatigue, complementary medicine, alternative therapy, yoga, massage therapy, acupuncture, energy therapy, aromatherapy, music therapy, pregnancy, postpartum period. Boolean operators (AND/OR) were utilized to ensure a thorough and inclusive retrieval of relevant articles. Also search of OpenGrey will be conducted for grey literature. In addition to searching the mentioned databases, the reference lists in the selected studies were also screened to find more articles. Two authors independently conducted the search process.

Eligibility/Exclusion Criteria

The eligibility criteria were defined according to the PICOS framework: (1) Participants: Women with uncomplicated prenatal and postpartum periods; (2) Intervention: Complementary medicine interventions to reduce symptoms of fatigue during pregnancy and postpartum; (3) Comparison: Routine care, placebo, or no intervention. (4) Outcomes: Primary outcome: Fatigue reduction (rate or intensity). Secondary outcomes: Psychological variables (depression, stress, anxiety); (5) Study design: Experimental and quasi-experimental studies, and prospective cohort study designs and, original articles published in Persian and English languages.

The exclusion criteria included: (1) duplicate publications, and (2) studies lacking sufficient data for extraction.

Data Extraction

Two independent reviewers conducted data extraction utilizing a standardized table, including: the first author, publication year, the participants, intervention type/dose, sample size, and key findings. EndNote X9 software was used to import the identified references, facilitating better data management. Following the removal of duplicates, reviews, and protocols, two reviewers independently assessed the studies in two phases based on the inclusion criteria: The process involves

(1) screening titles and abstracts and (2) reviewing full texts. The selection process was documented via a PRISMA flowchart.

Quality Evaluation

The Joanna Briggs Institute (JBI) critical appraisal tool was used to check the methodological quality of articles eligible for inclusion in the study. The risk of bias was independently assessed by two reviewers, with disagreements addressed by consulting a third researcher to ensure consistency.

Data Analysis

This systematic review employed a narrative synthesis for data analysis. First, data on intervention methods and study outcomes were extracted. Then, the data were categorized by types of interventions and their outcomes. Finally, major themes and key trends were identified and reported. This improved our understanding of available interventions and their effectiveness in reducing maternal fatigue.

Results

All studies were assessed systematically and based on PRISMA instruction (Figure 1).

In the initial search, 300 articles were identified and finally, with 15 studies ultimately included in the final analysis. The sample sizes across the included studies varied between 27 and 358 participants. Of these, 9 studies utilized a clinical trial design, while 6 employed a quasi-experimental approach." Study characteristics are summarized in Table 1.

According to the National Center for Complementary and Integrative Health (NCCIH) complementary medicine is categorized into five main groups; alternative or complementary medical systems (homeopathy, Ayurveda, etc.), mind-body Interventions (music therapy, yoga, etc.), manual body-based methods (massage, relaxation, physical activity), biologically based practices (aromatherapy, herbal medicine, etc.) and energy therapy methods (touch therapy, acupressure and reflexology, etc.).³⁵ This study adopted the NCCIH framework to categorize and analyze the interventions.

Biologically Based Practices

Biologically based practices are among the most widely used interventions in complementary medicine.³⁵ This category includes herbal medicines, aromatherapy, essential oils, and nutritional supplements. Multiple studies have evaluated plant-based extracts for aromatherapy to alleviate fatigue. Mohammad-Alizadeh et al.²² demonstrated that lavender foot bath cream improved sleep quality and reduced fatigue in postpartum women after six weeks. Similarly, Vaziri et al.²¹ shows a positive effect following the use of lavender oil for aromatherapy on postpartum pain and fatigue, and the results of the study of Jagadeeswari et al.²³ show that aromatherapy with lavender can be very effective in reducing the level of fatigue after childbirth. Additionally, Kyoko Asazawa²⁴ used extracts of pure lavender, ylang-ylang, citron, rosewood, and sweet orange plants for aromatherapy in women after childbirth, and they were able to reduce a lot of mothers' fatigue. Herbal teas, as biologically based interventions, were also studied. In a trial by Shao-Min Chang et al.³¹ chamomile tea administered to 40 postpartum women showed immediate fatigue reduction,

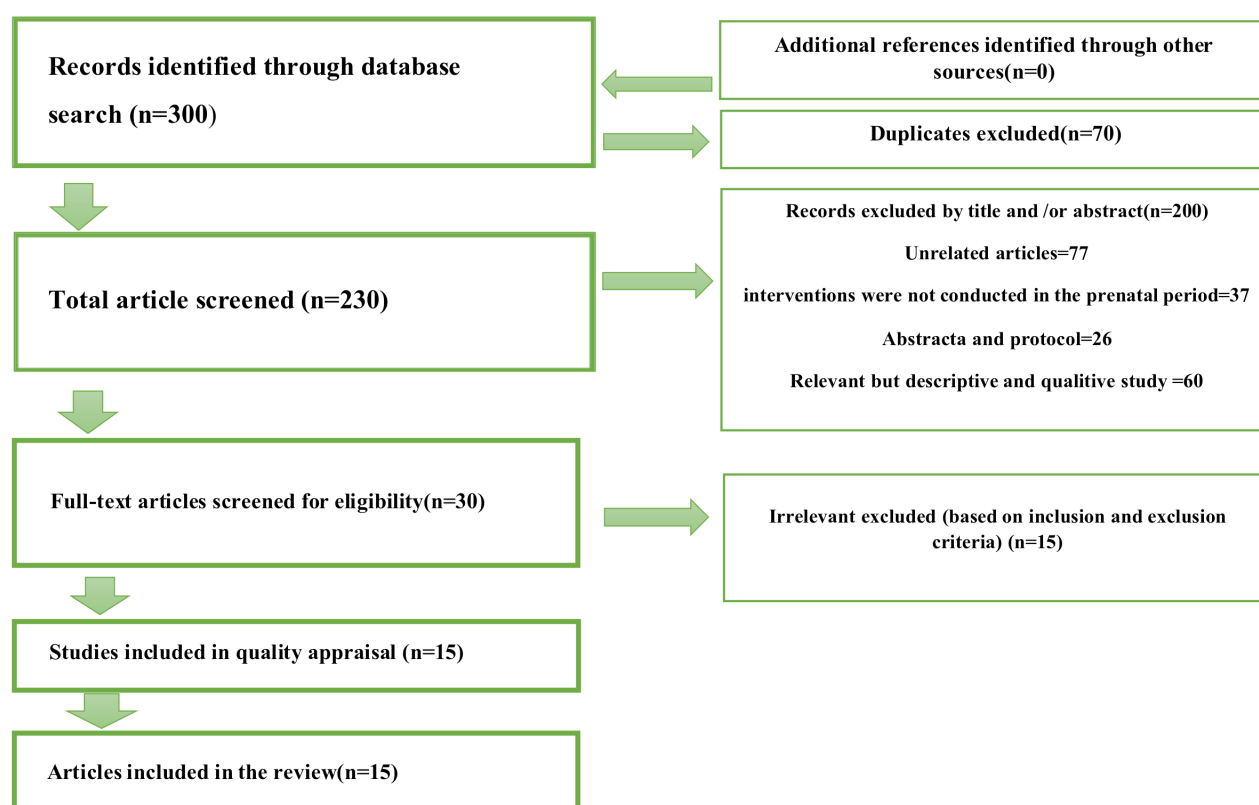


Fig. 1 Flowchart of study selection for systematic review.

though no sustained effects were observed after four weeks. These results were also seen in another study regarding the effect of lavender tea on fatigue.²⁵

Young et al.,²⁸ investigated placenta capsules for postpartum fatigue, comparing them to a meat-based placebo. The study revealed no significant differences in fatigue levels between the groups.

Manual Body-Based Methods

According to the NCCIH classification, this category includes massage, relaxation, and body warming practices.³⁵ Kartilah et al.,³³ demonstrated that combining progressive muscle relaxation (PMR) with aromatherapy significantly reduced postpartum fatigue levels, also the results of Moradi's study³² showed that postpartum women receiving back massage experienced less tired during the postpartum period and feel more relaxed. In addition, the effect of footbaths in reducing the fatigue of mothers was seen in Choi's study,³⁰ and Hsieh et al., showed that a hot-water shower was beneficial in reducing fatigue after childbirth and the fatigue score of these women was significantly lower fatigue scores compared to controls.²⁶

Energy Therapy Methods

These interventions focus on manipulating energies believed to originate within or around the body. The therapist seeks to increase the energy of the patient or balance the body's energy fields. The most common interventions are Therapeutic touch.³⁵ In order to examine the impact of reflexology on reducing the fatigue of mothers after childbirth, Modaresi et al.,¹³ investigated reflexology's effect on postpartum fatigue,

revealing a significant lower fatigue levels among the intervention group. Similarly, Kuo et al.,²⁹ study showed that ear acupressure significantly alleviated maternal fatigue and anxiety on the first and fifth days postpartum. Also, in another study that investigated the impact of compression massage on reducing stress, edema, and fatigue in women in the postpartum period, the study findings indicated that fatigue levels in the intervention group was reduced compared to that in the control group.²⁷ Shobeiri et al.,³⁴ found that counseling and reflexology can reduce the level of fatigue in mothers.

Discussion

In this systematic review, 15 studies were evaluated to investigate the impact of complementary medicine methods on maternal fatigue. The findings indicate that most studies confirmed the positive effects of these methods, but the level of evidence and mechanisms of effectiveness vary.

Jagadeeswari²³ and Asazawa²⁴ reported the use of aromatherapy to reduce fatigue. Tabatabaei's study also consistent with these findings.³⁶ Aromatherapy is a well-known method for reducing symptoms of physiological changes and disease.³³ It may serve as a suitable and beneficial option for new mothers experiencing anxiety and fatigue in the postpartum period.²⁴ Implementing aromatherapy program in various healthcare settings could enhance postpartum mothers' motivation and improve their health.²¹ Lavender aromatherapy is of great interest due to its anti-inflammatory, antidepressant, hypnotic, sedative, muscle-relaxing, antimicrobial, and antispasmodic properties.³⁷ Lavender products in various forms have been used in studies to reduce childbirth-related complications, and

Table 1. The characteristics of studies included in this systematic review

Outcome	The target group/ sample size	Intervention	Type of study	Country	Year	Author
Fatigue severity significantly differed between the reflexology and control groups ($P < 0.001$).	70 postnatal women	Reflexology	RCT	Iran	2021	Modares ¹³
The experimental group demonstrated improved physical and mood outcomes compared to the non-aromatic group.	56 postnatal women	Aromatherapy	RCT	Iran	2017	Vaziri ²¹
Fatigue significantly improved in both intervention groups by the 6th week postpartum ($P = 0.22$).	141 pregnant women	Lavender and footbath	RCT	Iran	2018	Mohammad-Alizadeh-Charandabi ²²
Fatigue levels were significantly reduced in the experimental group ($P < 0.005$).	30 postnatal women	Aromatherapy	Quasi-experimental	India	2020	Jagadeeswari ²³
There was no significant reduction in fatigue ($P = 0.055$).	242 postnatal women	Aromatherapy	Quasi-experimental	Japan	2018	Asazawa ²⁴
Fatigue levels were significantly reduced in the experimental group ($P = 0.014$).	80 postnatal women	Lavender tea and smell the aroma	RCT	Taiwan	2015	Chen ²⁵
A significant improvement in fatigue scores was observed in the intervention group.	358 postnatal women	Showers in warm water	Quasi-experimental	Taiwan	2017	Hsieh ²⁶
The experimental group showed a greater reduction in fatigue.	39 postnatal women	Meridian acupressure massage	Quasi-experimental	Republic of Korea.	2016	Jung ²⁷
No significant differences in maternal mood, bonding, or fatigue were observed between the placenta and placebo groups.	27 pregnant women	Capsules made of placenta	RCT	United States	2018	Young ²⁸
The mean fatigue symptoms in the intervention group were significantly lower than the control group ($P < 0.01$).	80 postnatal women	Auricular acupressure	RCT	Taiwan	2016	Shu-Yu Kuo ²⁹
The Fatigue scores differed significantly between the experimental and the control groups	100 postnatal women	Footbath	Quasi-experimental	South Korea	2016	Choi ³⁰
The positive effects of chamomile tea were limited to the immediate term.	80 postnatal women	Chamomile tea	RCT	Taiwan	2015	Shao-Min Chang ³¹
After intervention, the fatigue severity mean decreased ($P < 0/000$).	100 postnatal women	Back massage	RCT	Iran	2016	Moradi ³²
After interventions, fatigue scores decreased significantly ($P < 0.001$).	52 pregnant women	PMR with aromatherapy	A quasi-experimental	Indonesia	2020	Kartilah ³³
The intervention group showed significantly lower fatigue symptoms than the control group ($P < 0.01$).	126 pregnant women	Reflexology	RCT	Iran	2017	Shobeiri ³⁴

according to the World Health Organization, its use during pregnancy is harmless and safe.¹⁵ Shu-Lan Chen's research²⁵ demonstrated that lavender tea reduces feelings of fatigue and depression and while strengthening maternal-infant bonding. However, its beneficial effects of lavender tea may be temporary and do not have long-term effects. This result was also observed in the Shao-Min Chang's study³¹ with chamomile tea, so herbal tea may be recommended to postpartum women as a complementary approach with short-term benefits for reducing fatigue and improving sleep quality, but it should be noted that for long-term effects, it highlights the need for combined approaches (such as the use of combined psychological support).

Footbaths are frequently employed as a nursing intervention in various countries. Choi's study³⁰ showed footbaths

effective in reducing fatigue for both cesarean and vaginal delivery patients. Several studies indicated their positive impact on personal comfort, sleep quality, and physical relaxation, likely due to their influence on parasympathetic nerve activity^{38,39} to increasing the use of footbaths as a simple and cost-effective method to reduce maternal fatigue is recommended.⁴⁰

Furthermore, reflexology, through mechanisms based on energy rebalancing in the body,⁴¹ significantly reduces postpartum fatigue, stress, and depression.^{34,42} Reflexology itself is a complementary, non-invasive, and alternative therapy.⁴³ Bastani's study⁴⁴ revealed that foot reflexology reduced fatigue after cesarean delivery and Choi's study⁴¹ also supports these findings.

In addition, Progressive Muscle Relaxation (PMR) has been shown to significantly alleviate fatigue levels among pregnant women.³³ By relaxing muscle tension affecting sympathetic and parasympathetic nerve fibers, PMR reduces anxiety, increases relaxation, reduces pain perception, reduces fatigue in pregnant women, and improves women's health.⁴⁵ Proper maternal education and integration of this method with standard healthcare are critical for optimal effectiveness.

Acupressure is widely practiced in many countries, with studies demonstrating its positive effects on reducing post-pregnancy tension and fatigue.²⁷ Acupressure combines principles of Eastern medicine with the methodologies of Western medicine.²⁷ By focusing on meridian points, it not only reduces muscle tension but also restores the body's physiological balance by activating the parasympathetic system and improving blood circulation.^{27,46} Studies support acupressure for reducing maternal fatigue and demonstrate its potential for clinical use.^{46,47}

A study on placental hormones found that placenta supplements do not reduce maternal fatigue during the postpartum period.²⁸ However, research suggests placenta ingestion may have a mildly influence certain steroid hormone levels in the bloodstream, leading to slight improvements in mood and fatigue.⁴⁸ Unproven motives, such as preventing postpartum depression and anemia, have been cited among women who consume placenta.⁴⁹ Despite proponents' claims, insufficient evidence supports these assertions, and data on its safety and efficacy remain limited.⁴⁹ Therefore, standardized and safe preparation process are needed to minimize potential harm before further research. Women considering placenta supplements as an alternative to validated medical interventions for postpartum emotional disorders should exercise caution.^{28,48,49}

Conclusion

Postpartum fatigue is a common complication experienced by many mothers. Neglecting this condition or the use of

chemical drugs can lead to severe complications, adversely affecting individuals' quality of life, physical health, and mental well-being. Therefore, identifying safe and effective treatments is crucial. Complementary medicine may reduce maternal fatigue and improve sleep quality by alleviating stress and anxiety.

However, these therapies should be used cautiously, as some approaches might overlook underlying conditions (e.g., anemia and thyroid disorders) contributing to fatigue. Further research on complementary medicine and its applications in diverse care settings is essential. Increasing the number of clinical trials, more samples, and methodological diversity could establish complementary medicine as a safe and effective option for postpartum health.

Existing studies have primarily focused on short-term effects, highlighting the need for long-term follow-ups and interventions. Additionally, integrating complementary therapies with conventional medical treatments may yield more favorable outcomes.

Limitations

This review is restricted to articles available in full text in Persian or English due to language constraints. Furthermore, heterogeneity in intervention methods may limit the comparability and generalizability of the findings.

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Conflicts of Interest Disclosure

The authors declared no conflicts of interest. No funding was received for this study. ■

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