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REVIEW ARTICLE

A systematic review on the effect of Islamic complementary and alternative medicine in disease and symptom management

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Abstract

Islamic Complementary and Alternative Medicine (ICAM) has gained increasing attention as a therapeutic option for various health conditions. Although CAM has been extensively covered in previous systematic reviews, there remains a scarcity of literature focusing on therapies that incorporate or originate from Islamic principles. Therefore, this systematic review aims to describe the clinical benefits of ICAM interventions in managing various diseases across both hospital and community settings. A comprehensive search across Scopus, Wiley, ScienceDirect, and Cochrane databases initially identified 639 articles, with 45 studies ultimately included after screening. The Joanna Briggs Institute (JBI) critical appraisal checklists for randomized controlled trials and quasi-experimental studies were utilized to assess the quality of the evidence. The vast majority of studies (84.4%) were conducted in Iran, with the remainder originating from Saudi Arabia, Turkey, Pakistan, Indonesia, and Bangladesh. Regarding the types of interventions, ICAM primarily utilized herbal therapies (66.7%), followed by physical therapies such as acupressure and massage (8.8%), dietary modifications (6.6%), and aromatherapy (6.6%). The most frequently targeted conditions included hypoactive sexual desire disorder, premenstrual syndrome, dysmenorrhea, pain, type 2 diabetes mellitus (T2D), depression, and anxiety. The findings demonstrated positive effects across various health conditions, although the benefits were not entirely consistent across all interventions. Regarding methodological quality, the risk of bias was generally low, though several studies lacked clarity regarding blinding and allocation concealment. Overall, ICAM shows promise in addressing a wide range of health conditions, particularly through herbal and lifestyle-based interventions. However, further rigorous trials are warranted to strengthen the evidence base and ensure both the safety and efficacy in practice.

Keywords: Anxiety, complementary therapies, dysmenorrhea, herbal medicine, Islam, pain management, premenstrual syndrome, randomized controlled trials, systematic reviews

Introduction

Complementary and Alternative Medicine (CAM) represents a broad variety of healthcare interventions separate from conventional Western practices, ranging from herbal and traditional therapies to spiritual-based healing (Alsanad et al., 2025). CAM practices are commonly utilized in conjunction with conventional care, though they may also serve as an alternative to standard medical treatments (Romero-García et al., 2024). Patients with chronic conditions are known to be higher users of CAM practices in their daily lifespan (Flood et al., 2025). CAM use can be understood as a critical component of self-care management in general, and not as a rejection of conventional medicine or an unrealistic search for cure (Thorne et al., 2002). The adoption of CAM reflects a commitment to personal health autonomy. This practice redefines how treatment outcomes are measured and promotes a pragmatic strategy aimed at optimizing daily well-being despite living with a long-term medical condition. Across various settings, CAM is deeply intertwined with cultural and religious traditions, which serve as a foundational element in the integration of these complementary treatments (Heise et al., 2026), including Islamic integration. Grounded in Islamic teachings, ICAM represents a recognized

framework of healing modalities encompassing unique practices, beliefs, and philosophies (AlRawi & Zick, 2025). These modalities integrate herbal remedies, spiritual therapies, dietary regimens, mind-body techniques, and manual therapies to prevent illness and optimize holistic well-being (AlRawi et al., 2017).

In contemporary clinical settings, ICAM is utilized alongside conventional care rather than as a replacement (Mortada, 2024). ICAM complements standard treatments by reducing symptoms such as pain, anxiety, and dysmenorrhea, improving quality of life, addressing spiritual and existential needs, and supporting adherence to lifestyle recommendations—particularly in chronic conditions like diabetes and hypertension (Zakaria et al., 2021). One of the major practices within ICAM is Prophetic Medicine (*Tibb an-Nabawi*), which refers to health-related guidance, customs, and knowledge derived from the authentic traditions (*Sunnah*), sayings (*hadith*), actions, and tacit approvals of the Prophet Muhammad (*peace be upon him*) (Ahmad, 2024.; Hamdan et al., 2024). The medicine encompasses the use of honey, black seed (*Nigella sativa*), and cupping (*hijama*), which are thought to have both spiritual and physical benefits (Ali et al., 2018). The classification of herbs and practices as Islamic is based on two pillars. First, some foods and herbs are mentioned in the Qur'an and authentic hadith (El-Seedi et al., 2019). For example, honey is described in the Qur'an as containing healing for mankind and black seed is reported in hadith as a cure for every disease except death (Eteraf-Oskouei & Najafi, 2013). Second, nutrition and bioactive compounds found in specific foods and herbs play a critical role in promoting and maintaining human health, particularly within the context of a balanced diet (Alvarez-Leite, 2025). Plants, in particular, are regarded as rich sources of nutrition due to their high concentration of bioactive substances, leading many to be recognized as superfoods (Cobos & Díaz, 2023). Consequently, these plant-based remedies have been utilized for centuries to treat various illnesses, and they continue to serve as vital, affordable components in contemporary healthcare. This concept is fully consistent with the principles taught within the framework of Islamic medicine and health. Dating back to the time of Prophet Muhammad, Islamic tradition has long supported the medicinal application of herbs and nutrient-dense foods (Haq & Saad, 2026). The Prophet recommended various antioxidant-rich natural remedies specifically to combat the harmful effects of oxidative stress (Mogharbel et al., 2023). These natural ingredients are often perceived as having fewer side effects than synthetic drugs and as being more congruent with patients' religious beliefs (Karimi et al., 2015; Li & Gal, 2024). However, this perception does not exempt them from potential toxicity or adverse interactions with conventional medications (Sartori et al., 2025).

Spiritual healing, particularly *Ruqyah*, is an essential component of Islamic complementary medicine (Thorvilson et al., 2025). This practice involves reciting verses from the Qur'an and specific supplications (*du'a*) over the patient, especially in cases where illnesses are manifested as both mental disorders and physical ailments (Marthoenis et al., 2024). In line with the broader Islamic perspective of seeking spiritual well-being alongside medical treatment, this spiritual dimension serves as a form of reflective worship that acknowledges the divine role in healing (Miller et al., 2023). Consequently, spiritual therapies can complement standard psychiatric or medical care by addressing spiritual needs, enhancing coping mechanisms, and reinforcing meaning with hope (Zhang et al., 2024). Another prominent modality within Islamic complementary medicine is cupping therapy, traditionally referred to as *hijama* (Yiying et al., 2025). This treatment involves placing specialized cups onto either intact or scarified skin to extract blood and interstitial fluid containing causative pathological substances (El Ghazawi et al., 2025). Pathogenic substances comprise both the direct causative agents and the related byproducts generated during the course of disease development. Extant literature indicates that cupping therapy facilitates the restoration of physiological homeostasis through the clearance of these elements (Al-Bedah et al., 2018; Wu et al., 2025). For instance, the therapy has potential to treat or lessen the symptoms of lower back pain (Rubinstein et al., 2010), cellulitis (Al-Bedah et al., 2018), hypertension (Aleyeidi et al., 2015), and thalassemia (El-Shanshory et al., 2018).

The literature demonstrates a variety of positive therapeutic effects across different complementary therapies for a wide range of diseases. For instance, modalities such as herbal medicine, acupuncture, cupping, homeopathy, and spiritual healing have been successfully utilized to manage chronic pain, gastrointestinal disorders, trigeminal neuralgia, male infertility, mental health issues, and labor induction (Ang et al., 2023; Lee et al., 2023; Cao et al., 2010; Rubinstein et al., 2010; Shahid et al., 2022; Zamawe et al., 2018). However, safety remains a major concern, especially some herbal medicines are believed to be toxic and may contribute to mortality or morbidity (Farzaei et al., 2020; Zhang et al., 2015). Within this clinical condition, nurses are often the first professionals to encounter patients who are already using or intending to use ICAM. Their responsibilities include assessing patients' use of ICAM, identifying potential interactions with prescribed medications, monitoring treatment responses and adverse events, and providing evidence-based counselling that respects patients' religious values while safeguarding their safety (Elfaki, 2022). Particularly in Muslim-majority contexts, nurses are expected to deliver holistic, culturally and spiritually congruent care that integrates beliefs regarding Prophetic medicine and other Islamic practices into care planning. Nurses also play a vital role in health

education; this includes advising on safe cupping practices, discouraging the use of unregulated products or harmful interventions, and reinforcing that ICAM should complement, rather than replace, necessary conventional treatments (Dehghan et al., 2022). Furthermore, nurses can contribute to research and quality improvement initiatives aimed at rigorously evaluating ICAM interventions and integrating evidence-based practices into clinical guidelines (Mahat et al., 2024; Mortada, 2024).

To date, limited comprehensive and rigorous review has focused specifically on Islamic-framed CAM interventions, despite the growing volume of clinical trials. Existing publications are often limited to single interventions or disease conditions and do not provide an overarching assessment of effectiveness or methodological quality. This fragmentation makes it difficult for clinicians, nurses and policy-makers to formulate evidence-based recommendations or to develop regulatory frameworks that balance respect for Islamic belief with modern standards of safety and efficacy. To address this, the review to assess the effectiveness of ICAM based on all available clinical studies. This review presents an opportunity to provide a clearer understanding of ICAM. Given the diversity of ICAM modalities and clinical conditions, a systematic approach was essential to map the range of interventions that are framed as Islamic, and summarize their reported clinical effects. The findings of this review are expected to provide important implications and a fresh perspective on the utilization of Islamic-based complementary therapies. Furthermore, these therapeutic modalities are not exclusively intended for Muslim communities; rather, they offer broader clinical utility for diverse populations across various religious backgrounds.

Method

A systematic review methodology was chosen rather than a narrative or scoping review because the primary objective was to appraise and synthesize the effectiveness of ICAM interventions tested in controlled clinical designs, such as randomized controlled trials (RCTs) and quasi-experimental studies. The method uses transparent, pre-specified methods for searching, screening, data extraction and risk-of-bias assessment, reducing selection bias and increasing reproducibility (Calderon Martinez et al., 2025). This review was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analyses 2020 (PRISMA) statement (Page et al., 2021). The review question was structured according to the PICO framework, defining the eligibility criteria across four distinct domains. The Population (P) comprised adults ($\geq$ age 18 years) presenting with any health condition—such as chronic pain, dysmenorrhea, premenstrual syndrome, T2D, depression, anxiety, or hypoactive sexual desire disorder—across any clinical or community setting. The Intervention (I) required the administration of at least one ICAM therapy. Eligible modalities included herbs and foods explicitly mentioned in the Qur'an and authentic Hadith (e.g., honey, dates, black seed, olives, figs, pomegranates, and Zamzam water), cupping therapy (*hijama*), spiritual interventions such as *ruqyah* or Qur'anic recitation, and dietary or lifestyle modifications grounded in Islamic teachings. Multi-component interventions incorporating ICAM alongside other treatments were also included; furthermore, studies where the specific Islamic element was not explicitly described were retained, provided the study was retrieved through systematic searches using Islam-related terms. These interventions were evaluated against a Comparator (C) consisting of no treatment, usual or standard care, a placebo, or any other active control. Finally, eligible Outcomes (O) required the assessment of at least one clinically relevant endpoint, such as changes in symptom severity, pain scores, biochemical parameters (e.g., HBA1c or lipid profiles), psychological measures (e.g., anxiety or depression scales), sexual function scores, or validated quality-of-life instruments.

The literature search was conducted across four electronic databases: Scopus, Wiley Online Library, ScienceDirect, and the Cochrane Library, capturing articles published between January 1, 2014, and April 30, 2024. The search strategies utilized a combination of Medical Subject Headings (MeSH) terms and free-text keywords related to Islamic medicine and complementary therapies (Table 1). The inclusion criteria consist of any randomized controlled trials and quasi-experimental studies of adults using at least one of Islamic complementary therapy, which evaluated at least one relevant outcome. The therapy can be compared with no treatment, placebo or conventional medication. Combined therapy with other interventions were also included. The selection of relevant subjects were medicine, nursing, and health professions. In contrast, the exclusion criteria comprise of articles related to agricultural, biochemistry, genetics and molecular biology, chemistry, environmental science, computer science, business, management and accounting. Filter by keywords excluded nonhuman, animal experiment, genetic study, in vitro study, in vivo study, enzyme and antioxidant activity, and histopathology. Study protocol, pilot study, feasibility study, and qualitative study were also excluded. The search is limited to the analysis to articles only. To assure publication comparability, this review is limited to English language articles only.

All search results were imported into reference management software and duplicates were removed. Titles and abstracts were then screened for potential relevance by two reviewers independently, followed by full-text screening of potentially eligible studies. Disagreements at both stages were resolved through discussion or consultation with a third reviewer. The selection process is summarized in the PRISMA flow diagram (**Figure 1**). The authors extracted the information from the included trials independently and the results are summarized into tables. The extracted data included first author and year of publication, title of study, study design, types of Islamic complementary and alternative medicine, types of patients/ participants, number of participants in each intervention group, daily dosage regimen, duration of intervention, outcome measures, and main results. The assessment of methodological quality of the study was conducted using Joanna Briggs Institute (JBI) checklist for randomized controlled trials and quasi-experimental studies (Barker et al., 2024; Barker et al., 2023). The RCTs assessment include 13 questions as follows 1) Was true randomization used for assignment of participants to treatment groups? 2) Was allocation to treatment groups concealed? 3) Were treatment groups similar at the baseline? 4) Were participants blind to treatment assignment? 5) Were those delivering the treatment blind to treatment assignment? 6) Were treatment groups treated identically other than the intervention of interest? 7) Were outcome assessors blind to treatment assignment? 8) Were outcomes measured in the same way for treatment groups? 9) Were outcomes measured in a reliable way? 10) Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed? 11) Were participants analyzed in the groups to which they were randomized? 12) Was appropriate statistical analysis used? 13) Was the trial design appropriate and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial? Response options: Yes; No; Unclear; NA or not applicable. Meanwhile, the quasi-experimental study involved nine questions as follows 1) Is it clear in the study what is the “cause” and what is the “effect” (i.e. there is no confusion about which variable comes first)? 2) Was there a control group? 3) Were participants included in any comparisons similar? 4) Were the participants included in any comparisons receiving similar treatment/care, other than exposure or intervention of interest? 5) Were there multiple measurements of the outcome, both pre and post the intervention/exposure? 6) Were the outcomes of participants included in any comparisons measured in the same way? 7) Were outcomes measured in a reliable way? 8) Was follow-up complete and if not, were differences between groups in terms of their follow-up adequately described and analyzed? 9) Was appropriate statistical analysis used? Response options: Yes; No; Unclear; NA or not applicable.

Table 1. Search terms used during the review process.

Databases	Search terms
Scopus	Traditional Islam* complementary medicine Integrative Islam* medicine Alternative Islam* medicine Complementary Islam* therapies
Wiley	Integrative medicine OR traditional and complementary medicine alternative medicine OR natural medicine OR Complementary therapies OR Traditional medicine OR alternative therap OR complementary medicine OR complementary therap OR unconventional medicine OR holistic medicine AND Islam
ScienceDirect	Integrative medicine OR traditional and complementary medicine alternative medicine OR natural medicine OR Complementary therapies OR Traditional medicine OR alternative therap OR complementary medicine AND Islam
Cochrane	Integrative medicine OR traditional and complementary medicine alternative medicine OR natural medicine OR Complementary therapies OR Traditional medicine OR alternative therap OR complementary medicine OR complementary therap OR unconventional medicine OR holistic medicine AND Islam

This assessment was conducted by two authors working independently. The risk of bias was assessed based on the essential components of RCTs, including the application of true randomization, adequacy of generation of the allocation sequence, allocation concealment, blinding, and reliable outcome measures. The response options for determining the quality of all included trials were “yes”, “no”, “unclear”, or “not applicable”, following JBI guidance. Studies which met all criteria were answered “yes” and considered to have a lower risk of bias, studies which met none of the criteria were answered “no”, and studies were answered “unclear” if insufficient information acquired to make

judgment, both were regarded as having higher risk. Any disagreements were resolved by discussion or adjudication by a third reviewer.

Results

The initial database search yielded a total of 639 articles: Scopus (n=16), Wiley Online Library (n=167), ScienceDirect (n=455), and the Cochrane Library (n=1). Following the removal of 21 duplicates, the titles and abstracts of the remaining 618 publications were screened. At this stage, 562 articles were excluded for various reasons. Of the remaining studies, 52 full-text articles were retrieved for comprehensive eligibility assessment, from which 7 failed to meet the specified inclusion criteria. Ultimately, 45 articles underwent critical appraisal and were included in the final review (**Table 2**). The vast majority were conducted in Iran (n=38), followed by Saudi Arabia (n=3), and one each in Turkey, Pakistan, Indonesia, and Bangladesh (n=1each). In terms of study design, 43 of the included publications were RCTs, while the remaining two utilized a quasi-experimental design.

Among all the included studies, 30 (66.7%) used herbal therapies such as carrot seed (*Daucus Carota*) (Sadeghi et al., 2020), black cumin (Tuna et al., 2018), *Cinnamomum tamala* (Ghaffari et al., 2020), Chamomile (Zafar et al., 2016; Sharifi et al., 2014; Adib-

Hajbaghery & Mousavi, 2017), *Ficus carica* L. (Fig) (Abbasi et al., 2017), *Alcea digitata* and *Malva sylvestris* (Heydarirad, Rezaeizadeh, et al., 2017). Some studies used Amla (*Phyllanthus emblica* L.) (Varnosfaderani et al., 2018), *Malva sylvestris* L. flowers aqueous extract (Elsagh et al., 2015), propolis (Afsharpour et al., 2019; Darvishi et al., 2020; Sharif & Darsareh, 2019a), Curcumin (Farrokhfall et al., 2023), *Glycyrrhiza glabra* L. (herbal syrup from licorice) (Soleiman-Meigooni et al., 2022), *Melissa officinalis* (lemon balm) (Asadi et al., 2018), and Sumac (*Rhus coriaria* L.) (Hariri et al., 2023a). Another study used extract of *Punica granatum* var. *pleniflora* (Gavanji et al., 2014), Saffron (*Crocus sativus* L.) hydro-alcoholic extract (Milajerdi et al., 2017), Valerian root extract (Moghadam et al., 2016), MS14® natural product (Rezaeizadeh et al., 2023), Nigella sativa seeds (Huseini et al., 2022), Aqueous extract of *Juglans regia* L. leaf (walnut leaf) (Abdoli et al., 2017), *Achillea Millefolium* (Jenabi & Fereidoony, 2015), Oleoresin of *Pistacia atlantica* L. subspecies *Kurdica* (Mohtashami et al., 2023), *Rhubarb* (*Rheum ribes* L.) (Khiveh et al., 2017), *Vaccinium arctostaphylos* berry extract (Kianbakht & Hashem-Dabaghian, 2019), Phoenix *dactylifera* L. pollen (palm flowers) (Mirzaei et al., 2024), hemp seed and evening primrose oils (Rezapour-Firouzi et al., 2014), and Interferon beta-1a and sesame oil (Faraji et al., 2019). A total of 3 (6.6%) used diet modification and supplements such as diet based on the principles of Iranian traditional medicine (Ehsani et al., 2016), zinc supplementation (Islam et al., 2016), and whey protein (Navabzadeh et al., 2019a). Meanwhile, 1 (2.3%) used combination of herbal, lifestyle modification and acupuncture (Sahebkar-Khorasani et al., 2022a), 3 (6.6%) used aromatherapy (Dehghan et al., 2022; Hamdamin et al., 2018; Zamenjani et al., 2021). Furthermore, 2 (4.4%) used acupressure and massage (Harorani et al., 2024; Harorani et al., 2023), 1 (2.3%) used combination of massage and dry cupping (Hamzehnejadi et al., 2024), 2 (4.4%) used wet cupping (Aleyeidi et al., 2015a), 2 (4.4%) used Dzikr and Quran therapy (Sulistyawati et al., 2019), and 1 (2.3%) used Pilates exercise (Karimi et al., 2021).

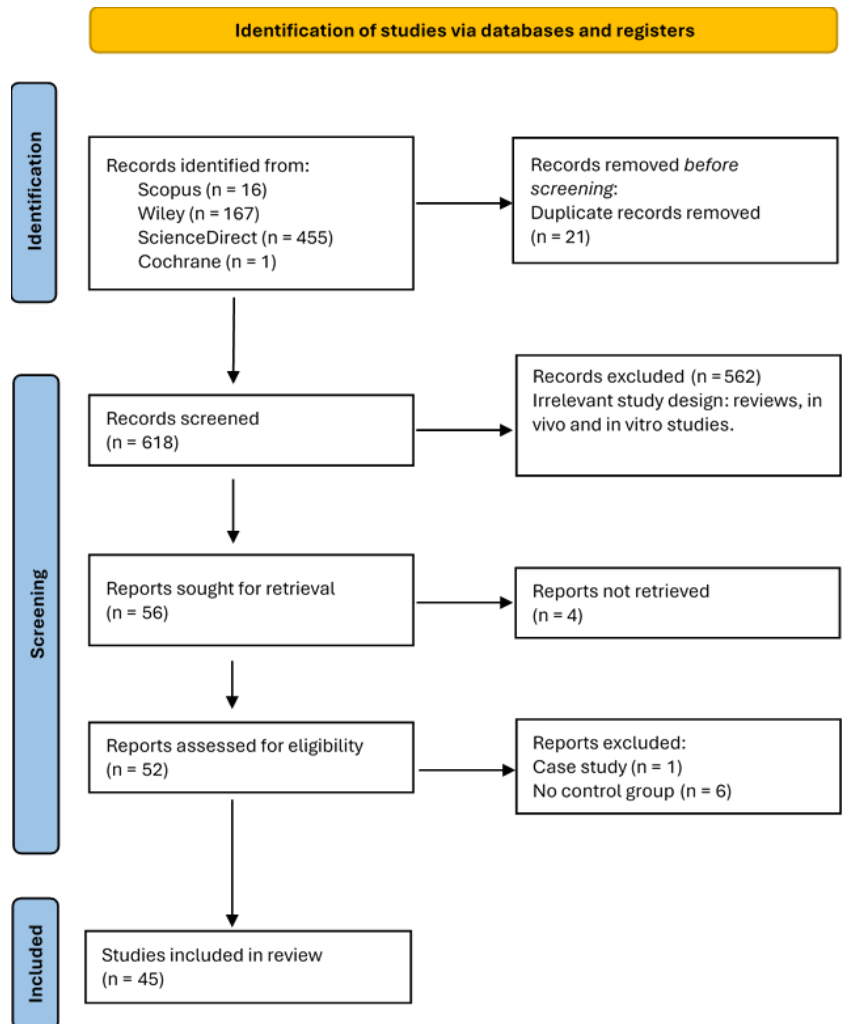


Figure 1. The search processes.

There are several diseases or symptoms that were treated by ICAM according to included studies. Those diseases or symptoms were hypoactive sexual desire disorder/male Infertility (2 studies), premenstrual syndrome and dysmenorrhea (5 studies), pain due to various conditions, namely knee osteoarthritis (4 studies), low back pain (1 study), labor pain (2 studies), cancer pain (2 studies), and surgery pain (2 studies). Others include type 2 diabetes mellitus (5 studies), depression and anxiety (3 studies), obesity (2 studies), insomnia (2 studies), multiple sclerosis (3 studies), and 10 studies covering atopic dermatitis, Gastroesophageal Reflux Disease (GERD), stomatitis, constipation, COVID-19, diarrhea, cirrhosis, hemodialysis, dysrhythmia in cardiac patients and burn. The risk of bias was assessed using the JBI checklist for randomized controlled trials and quasi-experimental studies (**Table 3 and 4**). Critical appraisal indicated most studies had a low risk of bias. All studies provided comprehensive study subjects and setting, performed data analysis with adequate representation of the identified sample, and employed suitable statistical methods. Some studies received a "no" in certain components because the interventions themselves were different in nature and could not be blinded, such as sachets of herbs and spray medications.

A total of 29 studies met all 13 and 9 criteria on the JBI checklist. The studies are Abbasi et al., 2017; Al-Eidi et al., 2019; Asadi et al., 2018; Moghadam et al., 2016; Elsagh et al., 2015; Farrokhfall et al., 2023; Gavanji et al., 2014; Ghaffari et al., 2020; Hariri et al., 2023; Harorani et al., 2024; Huseini et al., 2022; Ehsani et al., 2016; Jenabi & Fereidoony, 2015; Varnosfaderani et al., 2018; Khiveh et al., 2017; Kianbakht & Hashem-Dabaghian, 2019; Milajerdi et al., 2017; Mohtashami et al., 2023; Navabzadeh et al., 2019; Zamenjani et al., 2021; Rezaeizadeh et al., 2023; Rezapour-Firouzi et al., 2014; Sadeghi et al., 2020; Sahebkar-Khorasani et al., 2022; Sharif & Darsareh, 2019; Sharifi et al., 2014; Sulistyawati et al., 2019; Tuna et al., 2018; Zafar et al., 2016. Meanwhile, 16 studies met at least 9 of the 13 criteria. The studies are Abdoli et al., 2017; Adib-Hajbaghery & Mousavi, 2017; Afsharpour et al., 2019; Aleyeidi et al., 2015; Darvishi et al., 2020; Dehghan et al., 2022; Faraji et al., 2019; Hamdamian et al., 2018; Hamzehnejadi et al., 2024; Harorani et al., 2023; Heydarirad et al., 2017; Islam et al., 2016; Karimi et al., 2021; Maarof et al., 2023; Mirzaei et al., 2024; Soleiman-Meigooni et al., 2022. This was primarily due to unclear risk of bias arising from insufficient methodological reporting across several domains. Specifically, many studies did not clearly report whether outcome assessors were blinded to treatment allocation (16 studies), whether personnel administering the intervention were blinded (16 studies), whether participants were blinded (9 studies), or whether allocation concealment procedures were adequately implemented (7 studies).

The findings of the studies demonstrate that a variety of traditional herbal and therapeutic interventions exert positive effects on hypoactive sexual desire disorder (HSDD) and male infertility. For instance, Carrot seed (*Daucus carota*) was found to improve sexual desire in women diagnosed with HSDD (Sadeghi et al., 2020). Another study focused on Phoenix *dactylifera* L. pollen reported improvements in sperm concentration and total sperm count among men (Mirzaei et al., 2024). In addressing Premenstrual syndrome (PMS), Chamomile was noted to reduce psychological symptoms, although it failed to alleviate physical symptoms (Sharifi et al., 2014). Valerian root extract also demonstrated positive outcomes in managing PMS symptoms (Moghadam et al., 2016), while curcumin resulted in a decrease in serum nitric oxide levels (Farrokhfall et al., 2023). Besides, in a study examining the effects of *Achillea millefolium* (yarrow flowering plant) on pain relief, the Visual Analog Scale (VAS) scores indicated an improvement over one month (Jenabi & Fereidoony, 2015). Participants showed a mean pain score of 7.40 ± 1.84 initially, which decreased to 1.17 ± 1.04 after treatment ($p=0.001$). For menopausal symptoms, royal jelly yielded a decreased menopausal symptoms score (Mean Difference = -13.11 , $p=0.001$) (Sharif & Darsareh, 2019).

In reducing knee osteoarthritis pain, Black cumin (*Nigella sativa*) oil demonstrated a reduction in pain, with VAS scores decreasing from 7.50 ± 0.97 to 6.30 ± 1.14 (Tuna et al., 2018). Similarly, the same oil of *Nigella sativa* also showed an improvement in VAS scores, moving from 4.63 ± 1.09 to 3.52 ± 0.54 (Huseini et al., 2022). The topical application of oleoresin from *Pistacia atlantica* L. subspecies *kurdica* resulted in a reduction in pain measured using Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score, indicated by a percentage difference of 30.68 (8.09) (Mohtashami et al., 2023). Additionally, comparisons between Pilates training and suspension training for knee function assessed via the WOMAC revealed significant results (Karimi et al., 2021). Suspension training showed a mean difference of 580.5 (296.0) ($p=0.001$), while Pilates training showed a mean difference of 950.3 (296.0) ($p=0.001$). These findings suggest that both treatments effectively reduce pain and improve knee function in individuals with osteoarthritis. In the management of chronic low back pain, wet cupping therapy, specifically Hijama and Asian cupping, was investigated for its efficacy. The results indicated a decrease in both the Present Pain Intensity (PPI) and the Oswestry Disability Questionnaire (ODQ) scores immediately following the intervention ($p<0.001$) (Al-Eidi et al., 2019). Importantly, there were no differences in outcomes between Hijama and Asian cupping, suggesting that both modalities provide similar therapeutic effects in alleviating pain and enhancing functional capability in patients suffering from lower back pain.

Table 2. Articles for final analysis.

No	Authors, year	Design	ICAM	Disease, sample size	Dosage, duration	Findings
1.	Sadeghi et al., 2020	RCT	Carrot seed	HSDD, 68 participants in 2 groups	500 mg in 3 times a day for 12 weeks versus placebo	Improvement of sexual dysfunction
2	Tuna et al., 2018	Quasi experimental study	Black cumin oil	Knee osteoarthritis, 60 participants in 2 groups	Rubbing knees by black cumin oil 3 times a week for 1 month	The therapy is effective for knee pain
3	Ghaffari et al., 2020	RCT	<i>Cinnamomum tamala</i>	Depression, 50 participants in 2 groups	<i>Sertraline</i> (100 mg twice a day) plus <i>Cinnamomum tamala</i> (500 mg daily) for 6 weeks versus placebo	The therapy is effective for depression
4	Zafar et al., 2015	RCT	<i>Chamomilla</i>	Pregnant women, 99 participants in 3 groups	<i>Chamomile</i> , <i>Pentazocine</i> , placebo. 1 ml of each therapy	The therapies offer substantial effect in analgesia during labour
5	Sharifi et al., 2014	RCT	<i>Matricaria chamomila</i>	PMS, 90 participants in 2 groups	<i>Chamomile</i> capsule 100 mg or MA 250 mg three times a day	<i>Chamomile</i> is effective for PMS pain
6	Adib-Hajbaghery et al., 2017	RCT	<i>Chamomile extract</i>	Insomnia, 60 participants in 2 groups	<i>Chamomile</i> (200mg) twice a day for 28 days versus wheat flour capsules (200mg)	<i>Chamomile</i> extract improve sleep quality
7	Abbasi et al., 2017	RCT	<i>Ficus carica L. (Fig)</i>	Atopic dermatitis, 45 participants in 3 groups	Melfi cream versus Hydrocortisone 1.0% cream versus Placebo (base cream) for 2 weeks	Fig fruit extract can be used for mild to moderate of atopic dermatitis
8	Heydarirad et al., 2017	RCT	<i>Alcea digitata</i> and <i>Malva sylvestris</i>	Head and neck cancers (HNC), 60 participants in 2 groups	4 g of mixed powder of <i>A. digitata</i> and <i>M. Sylvestris</i> (three times per day)	a suitable treatment for xerostomia and improving quality of life
9	Varnosfader ani et al., 2018	RCT	Amla (<i>Phyllanthus emblica L.</i>)	Symptoms of GERD, 68 participants in 2 groups	500 mg Amla tablets twice a day, after meals, for 4 weeks versus placebo	Amla reduced frequencies of heartburn and regurgitation
10	Elsagh et al., 2015	RCT	<i>Malva sylvestris L.</i> flowers aqueous extract	Constipation, 110 participants in 2 groups	Extract syrup (<i>Malva</i> , 1 g extract/day) or placebo for four weeks	The therapy is effective for constipation
11	Afsharpour et al., 2019	RCT	Propolis	T2D, 60 participants in 2 groups	500 mg, three times a day (1500 mg) versus placebo	Propolis improved glycaemic status and reduced insulin resistance

Table 2. Articles for final analysis (Continue).

No	Authors, year	Design	ICAM	Disease, sample size	Dosage, duration	Findings
12	Darvishi et al., 2020	RCT	Propolis	Breast cancer, 60 participants in 2 groups	250 mg/ twice daily for 3 months versus placebo	Improvement in oxidant/antioxidant balance
13	Sharif et al., 2019	RCT	Royal jelly capsules	Women with menopausal, 200 participants in 2 groups	1000 mg capsules for eight weeks versus placebo	Reduce the menopausal symptoms
14	Farrokhfall et al., 2023	RCT	Curcumin	Women with premenstrual syndrome and dysmenorrhoea	500 mg of curcuminoid plus piperine versus placebo	Curcuminoid-piperine supplementation may cause a reduction in serum NOx levels
15	Soleiman-Meigooni et al., 2022	RCT	Herbal syrup from licorice	Patients with COVID-19 infection, 213 participants in 2 groups	Licorice syrup for 7 days versus placebo	Licorice improved O2 saturation and inflammatory markers
16	Asadi et al., 2018	RCT	<i>Melissa officinalis</i>	T2D, 70 participants in 2 groups	Hydroalcoholic extract of <i>M. officinalis</i> (700 mg/d) twice-daily for 12 weeks versus placebo.	<i>M. officinalis</i> is safe and effective in improvement of Apo A-I, Apo B/Apo A-I, and lipids ratios
17	Hariri et al., 2023	RCT	Sumac powder	overweight/obese women with depression, 60 participants in 2 groups	Calorie Restricted Diet (CRD) plus 3 g/day of either sumac or placebo for 12 weeks	Sumac along with a CRD may have some beneficial effects on appetite
18	Gavanji et al., 2014	RCT	Extract of <i>Punica granatum var. pleniflora</i>	Minor recurrent aphthous stomatitis, 210 participants in 7 groups	alcoholic extracts, water extracts of granatum var. pleniflora for 10 days	The therapy decreased the entire time of treatment
19	Milajerdi et al., 2017	RCT	Saffron hydro-alcoholic extract	T2D, 54 participants in 2 groups	15 mg saffron extract twice a day for 8 weeks versus placebo	Saffron did not improve renal and liver functions
20	Moghadam et al., 2016	RCT	Valerian root extract	Students with PMS symptoms, 100 participants in 2 groups	2 pills daily in the last seven days of their menstrual cycle for 3 cycles	The therapy reduced emotional, physical, and behavioural symptoms
21	Rezaeizadeh et al., 2023	RCT	MS14® natural product	Multiple sclerosis, 80 participants in 2 groups	MS14 capsule or placebo 3 times a day for 3 weeks	Safe natural treatment to support multiple sclerosis care

Table 2. Articles for final analysis (Continue).

No	Authors, year	Design	ICAM	Disease, sample size	Dosage, duration	Findings
22	Huseini et al., 2022	RCT	Nigella sativa seeds	Knee osteoarthritis, 116 participants in 2 groups	2.5 mL Nigella Sativa oil orally every 8 h for 1 month versus placebo	Nigella Sativa oil reduced the osteoarthritis symptoms
23	Abdoli et al., 2017	RCT	Aqueous extract of <i>Juglans regia</i> L. leaf	T2D, 37 participants in 2 groups	Juglans regia capsule (250 mg) for 3 months versus placebo	The therapy had a lowering effect of FPG, PPG and HbA1c
24	Jenabi & Fereidoony, 2015	RCT	<i>Achillea Millefolium</i>	Dysmenorrhea, 91 participants in 2 groups	A millefolium in teabag form for 3 days in 2 menstruation cycles versus placebo	A millefolium reduced pain intensify
25	Mohtashami et al., 2023	RCT	Topical oleoresin of <i>Pistacia atlantica</i> L. subspecies <i>kurdica</i> (herbal)	Knee osteoarthritis, 100 participants in 2 groups	Topical OPAK applied on the knees every 8 h for 1 month	The therapy is safe and reduces joint pain, stiffness and dysfunction
26	Khiveh et al., 2017	RCT	Rhubarb (<i>Rheum ribes</i> L.)	Dysenteric diarrhoea, 150 participants in 2 groups	<i>R. ribes</i> syrup administered for 5 days	The therapy can be a complementary treatment for diarrhoea
27	Kianbakht et al., 2019	RCT	<i>Vaccinium arctostaphylos</i> berry extract	Overweight/obese, hypertension, 100 participants in 2 groups	3-month intake of 400 mg extract capsule three times daily with anti-hypertensive regimen	The therapy improves blood pressure control, has safety and tolerability in the overweight/obese
28	Mirzaei et al., 2024	RCT	Palm flowers	Male Infertility, 80 participants in 2 groups	6 g of Phoenix <i>dactylifera</i> L. pollen powder daily or 400 mg of PTX tablets daily for 90 days	The therapy is recommended for ameliorating infertility
29	Rezapour-Firouzian et al., 2014	RCT	<i>Hemp seed</i> and <i>evening primrose</i> oils	Multiple sclerosis, 100 participants in 3 groups	<i>Hemp seed</i> , primrose oils with advised Hot-nature diet versus olive oil versus placebo for 6 months	Therapy received by group A affects antioxidant intake
30	Faraji et al., 2019	RCT	Interferon beta-1a and sesame oil	Multiple sclerosis, 93 participants in 2 groups	Interferon beta-1a addition of 0.5 mL/kg/day of oral sesame oil for 6 months	Sesame oil have beneficial effects for multiple sclerosis
31	Ehsani et al., 2016	RCT	Iranian Traditional Medicine (Diet and lifestyle)	Cirrhosis, 57 participants in 2 groups	Diet and lifestyle modification for 3 months versus placebo	The therapy is effective for weight reduction and weight gain

Table 2. Articles for final analysis (Continue).

No	Authors, year	Design	ICAM	Disease, sample size	Dosage, duration	Findings
32	Islam et al., 2016	RCT	Zinc supplementati on	Pre-diabetes symptoms, 55 participants in 2 groups	30mg zinc sulphate dispersible tablet for 6 months	Zinc supplementation improved fasting blood glucose levels
33	Navabzadeh et al., 2019	RCT	<i>Ma'aljobon</i>	Hypertension and insomnia, 114 participants in 2 groups	Consumed 25 g of Ma'aljobon, dissolved in 200 cc of warm water, both at fasting time (between 6 a.m. and 7 a.m.) and at 6 p.m for 6 weeks	<i>Ma'aljobon</i> reduced the severity of insomnia and improve sleep quality
34	Sahebkar-Khorasani et al., 2022	RCT	<i>Hypericum perforatum</i> , acupuncture, and lifestyle modification	Obesity, 88 participants in 4 groups	<i>Hypericum perforatum</i> : 640 mg daily (4 tablets/day) for 6 weeks, Electroacupuncture/Sham: 18 sessions total over the 6-week period, Lifestyle modifications: Recommendations provided throughout the 6-week intervention	Both treatments showed significant effects on appetite control
35	Dehghan et al., 2022	RCT	Lavender, rosemary and orange essential oils	Haemodialysis, 86 participants in 4 groups	Five drops of the essential oil were placed at a distance of 10 cm from the patient's nose one hour after haemodialysis, and inhale for 30 minutes	Lavender or Rosemary reduced memory problems
36	Hamdamian et al., 2018	RCT	Aromatherapy with <i>Rosa damascena</i>	110 nulliparous women in 2 groups	0.08 mL of <i>Rosa damascena</i> essence in every 30 minutes versus placebo	Aromatherapy with <i>R. damascena</i> reduced pain and anxiety
37	Zamenjani et al., 2021	RCT	Aromatherapy using sweet orange, damask rose, and placebo (distilled water)	Open abdominal surgeries, 120 participants in 3 groups	Aromatherapy using sweet orange, damask rose, and placebo (distilled water)	Sweet orange seems to be more effective than other in pain reduction
38	Harorani et al., 2024	RCT	Acupressure	Burn, 76 participants in 2 groups	Acupressure in 10 minutes for 2 days versus placebo	Acupressure reduced pain

Table 2. Articles for final analysis (Continue).

No	Authors, year	Design	ICAM	Disease, sample size	Dosage, duration	Findings
39	Harorani et al., 2023	RCT	Acupressure	Breast cancer, 70 participants in 2 groups	Acupressure in 5 minutes for 3 days versus placebo	Acupressure reduced anxiety
40	Hamzehneja di et al., 2024	RCT	Massage, dry cupping	Dysrhythmia, 90 participants in 3 groups	Massage versus dry cupping versus placebo for 15 minutes in 3 days	Dry cupping reduced dysrhythmia
41	Al-Eidi et al., 2019	RCT	Wet Cupping and Asian Cupping	Chronic low back pain (CLBP), 70 participants in 2 groups	Wet-cupping is given 14 days versus Asian Cupping	No differences impact between groups
42	Aleyeidi et al., 2015	RCT	Wet Cupping	Hypertension, 40 participants in 2 groups	Wet-cupping is given 3 times versus placebo	Wet-cupping reduced systolic blood pressure
43	Sulistyawati et al., 2019	Quasi-experimental study	Dhikr Therapy	Cancer, 40 participants in 2 groups	Dhikr therapy is given once a day with a minimum time of 10 min versus placebo	Dhikr therapy reduced anxiety
44	Maarof et al., 2023	RCT	Listening to the Qur'an in	Laparoscopic Cholecystectomy, 112 participants in 2 groups	Listened to the Qur'an recitation and received Fentanyl for 20 minutes versus placebo	The therapy reduced the need for narcotics in the Post Anaesthesia Care Unit (PACU) and the PACU length of stay
45	Karimi et al., 2021	RCT	Pilates training versus suspension training	Knee osteoarthritis, 30 participants in 3 groups	8-week (3x/week, 1 h/session) Pilates and suspension training program	Pilates and suspension are effective for knee osteoarthritis motion, and performance

In a study assessing labor pain relief, the efficacy of Chamomilla was evaluated; however, results indicated no significant change in pain levels (Zafar et al., 2016). Conversely, aromatherapy using *Rosa damascena* demonstrated improvements (Hamdamian et al., 2018). Specifically, patients in the aromatherapy group experienced lower levels of labor pain at cervical dilation stages of 4–5 cm, 6–7 cm, and 8–10 cm. In a study focusing on pain relief for patients with head and neck cancers, the effects of *Alcea digitata* (fingered hollyhock-flower) and *Malva sylvestris* (mallow-flower) were investigated using quality of life questionnaire (Heydarirad et al., 2017). The results indicated a reduction in pain levels. In a study examining pain relief following open abdominal surgeries, aromatherapy using essential oils of sweet orange and Damask rose was evaluated. The VAS results indicated no change in pain levels 4 hours after the intervention (Zamenjani et al., 2021). However, 8 hours post-surgery, pain scores showed improvement with sweet orange oil, reporting 6.47 ± 1.99 compared to 7.42 ± 1.51 for the damask rose group and 7.90 ± 2.44 for the control group ($p=0.007$). In a study on patients undergoing laparoscopic cholecystectomy, the impact of listening to the Qur'an was assessed in relation to pain relief and anxiety reduction. The results indicated a reduction in opiate use with a comparison of dosages: 40 mcg versus 60 mcg (Maarof et al., 2023). Anxiety levels, as measured by the Spielberger State-Trait Anxiety Inventory, showed a reduction. In the context of managing breast cancer-related inflammation and pain, recent studies have evaluated the efficacy of propolis and acupressure massage. Propolis, a natural resinous substance produced by bees, showed no change in inflammatory markers, such as Malondialdehyde (MDA), Protein Carbonyl (PC), Prooxidant-

Antioxidant Balance (PAB), Tumor Necrosis Factor-alpha (TNF- α), Transforming Growth Factor-beta (TGF- β), Interleukins (IL-10, IL-1 β , IL-2), and Matrix Metalloproteinases (MMP-2, MMP-9) (Darvishi et al., 2020). In contrast, acupressure massage demonstrated a reduction in anxiety levels (Harorani et al., 2023). In the management of stomatitis, the application of *Punica granatum var. pleniflora* demonstrated a reduction in pain levels, as indicated by a decrease in the VAS scores (Gavanji et al., 2014). In the treatment of burns, acupressure was found to reduce pain levels, evidenced by a mean difference MD of -5.76 (0.49) in VAS scores, with a $p < 0.001$ (Harorani et al., 2024).

Table 3. Risk of bias assessment for studies with RCTs.

No	Authors, year	The JBI checklist for RCTs												
		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Abbasi et al., 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	Farrokhfall et al., 2023	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	Zafar et al., 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	Rezapour-Firouzi et al., 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	Abdoli et al., 2017	Yes	Yes	Yes	Yes	Yes	Yes	Uncl ear	Yes	Yes	Yes	Yes	Yes	Yes
6	Kianbakht et al., 2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	Darvishi et al., 2020	Yes	Yes	Yes	Yes	Yes	Yes	Uncl ear	Yes	Yes	Yes	Yes	Yes	Yes
8	Ghaffari et al., 2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	Faraji et al., 2019	Yes	Uncl ear	Yes	Uncl ear	Uncl ear	Yes	Uncl ear	Yes	Yes	Yes	Yes	Yes	Yes
10	Sahebkar-Khorasani et al., 2022	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	Sharifi et al., 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	Jenabi et al., 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	Ehsani et al., 2016	Yes	Uncl ear	Yes	Uncl ear	Uncl ear	Yes	Uncl ear	Yes	Yes	Yes	Yes	Yes	Yes

Propolis showed promising results in managing T2D by lowering fasting blood glucose and HbA1c levels (Afsharpour et al., 2019). Other herbal interventions, such as *Melissa officinalis* and *Juglans regia* L. leaf, also demonstrated expected outcomes in lipid profiles and fasting blood glucose levels (Abdoli et al., 2017). Meanwhile, Saffron did not lead to any significant changes in blood urea nitrogen (BUN), creatinine, and uric acid levels, suggesting that it may be safe for kidney function without causing any adverse effects in this regard (Milajerdi et al., 2017). On the other hand, zinc supplementation is associated with improved glycemic control, enhanced beta cell function, and increased insulin sensitivity (Islam et al., 2016). *Cinnamomum tamala* improved symptoms in major depressive disorder when used in conjunction with sertraline ($p < 0.012$) (Ghaffari et al., 2020), while dhikr therapy reduced anxiety in patients with cancer ($p < 0.001$) (Sulistyawati et al., 2019). In terms of obesity management, various interventions showed mixed results, with no significant changes in BMI reported for Hypericum perforatum and acupuncture (Sahebkar-Khorasani et al., 2022). Also, the use of *Vaccinium arctostaphylos* berry extract did not result in any changes to BMI or waist circumference (Kianbakht & Hashem-Dabaghian, 2019).

Table 3. Risk of bias assessment for studies with RCTs (Continue).

No	Authors, year	The JBI checklist for RCTs												
		1	2	3	4	5	6	7	8	9	10	11	12	13
14	Harorani et al., 2023	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
15	Rezaeizadeh et al., 2023	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	Sharif et al., 2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
17	Hamdamian et al., 2018	Yes	Uncl ear	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
18	Karimi et al., 2021	Yes	Uncl ear	Yes	Yes	Uncl ear	Yes	Uncl ear	Yes	Yes	Yes	Yes	Yes	Yes
19	Khiveh et al., 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	Aleyeidi et al., 2015	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
21	Varnosfaderani et al., 2018	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
22	Huseini et al., 2022	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
23	Soleiman-Meigooni et al., 2022	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
24	Heydarirad et al., 2017	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
25	Elsagh et al., 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
26	Mohtashami et al., 2023	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
27	Sadeghi et al., 2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
28	Mirzaei et al., 2024	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
29	Afsharpour et al., 2019	Yes	Uncl ear	Yes	Uncl ear	Uncl ear	Yes	Uncl ear	Yes	Yes	Yes	Yes	Yes	Yes
30	Asadi et al., 2018	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31	Hariri et al., 2023	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
32	Navabzadeh et al., 2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
33	Gavanji et al., 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
34	Milajerdi et al., 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Chronic insomnia was effectively managed with chamomile extract, improving sleep quality ($p=0.007$) (Adib-Hajbaghery & Mousavi, 2017). In a study investigating the effects of *Ma'aljobon*, a type of whey protein, on sleep quality, participants reported significant improvements (Navabzadeh et al., 2019). Wet cupping demonstrated a reduction in

systolic blood pressure, with values improving from 149.0 ± 18.5 to 140.0 ± 17.7 ($p < 0.05$), while diastolic blood pressure showed no significant changes (Aleyeidi et al., 2015).

Table 3. Risk of bias assessment for studies with RCTs (Continue).

No	Authors, year	The JBI checklist for RCTs												
		1	2	3	4	5	6	7	8	9	10	11	12	13
35	Moghadam et al., 2016	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
36	Harorani et al., 2024	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
37	Adib-Hajbaghery et al., 2017	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
38	Zamenjani et al., 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
39	Dehghan et al., 2022	Yes	Uncl ear	Yes	Uncl ear	Uncl ear	Yes	Uncl ear	Yes	Yes	Yes	Yes	Yes	Yes
40	Maarof et al., 2023	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
41	Hamzehneja et al., 2024	Yes	Uncl ear	Yes	Uncl ear	Uncl ear	Yes	Uncl ear	Yes	Yes	Yes	Yes	Yes	Yes
42	Al-Eidi et al., 2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
43	Islam et al., 2016	Yes	Yes	Yes	Uncl ear	Uncl ear	Yes	Uncl ear	Yes	Yes	Yes	Yes	Yes	Yes

Table 4. Risk of bias assessment for studies with quasi-experimental design.

No	Authors, year	The JBI checklist for quasi-experimental design								
		1	2	3	4	5	6	7	8	9
44	Sulistyawati et al., 2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
45	Tuna et al., 2018	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

In patients with multiple sclerosis, the MS14® intervention indicated a positive effect on physical activity, measured using International Physical Activity Questionnaire (IPAQ), with a mean difference of 674.77 ± 1988.29 ($p = 0.041$) (Rezaeizadeh et al., 2023). The combination of hemp seed and evening primrose oils resulted in a significant improvement in the Expanded Disability Status Scale (EDSS) score, reducing from 2.76 ± 1.39 to 1.77 ± 1.7 ($p < 0.001$) (Rezapour-Firouzi et al., 2014). Furthermore, the administration of interferon beta-1a alongside sesame oil led to a decrease in inflammatory markers, including IFN- γ (420 ± 150 vs. 239 ± 83 , $p = 0.029$) and nitric oxide (NO), with indicating significant reductions ($p = 0.0001$ for NO and $p = 0.01$ for TNF- α) (Faraji et al., 2019). Additionally, treatment with *Ficus carica* L. (Fig) for atopic dermatitis resulted in significant improvements in the Severity of Atopic Dermatitis (SCORAD) scores, with a mean difference of -23.28 ($p < 0.001$) and a reduction in pruritus intensity (MD -3.94 , $p < 0.001$) (Abbasi et al., 2017). The impact of dietary changes based on Iranian traditional medicine was effective in cirrhosis patients, leading to significant improvements in liver function tests (Ehsani et al., 2016). The use of Amla (*Phyllanthus emblica* L.) for managing GERD resulted in significant improvements, as evidenced by a reduction in the frequency of heartburn from a mean of 3.78 ± 0.78 to 1.27 ± 0.59 ($p = 0.001$) and a decrease in severity from 2.16 ± 0.64 to 1.13 ± 0.34 ($p = 0.001$) (Varnosfaderani et al., 2018).

Treatment with *Malva sylvestris* (Mallow-flower) showed promising results for constipation, increasing the frequency of defecation from 4.61 ± 3.14 to 7.00 ± 3.95 ($p < 0.001$) and improving constipation symptoms from 2.11 ± 0.83 to 1.16 ± 0.94 ($p < 0.001$) (Elsagh et al., 2015). Straining during defecation also decreased, from 2.23 ± 0.71 to 1.27 ± 0.82 ($p < 0.001$). In the context of COVID-19, the herbal syrup derived from *Glycyrrhiza glabra* L. demonstrated anti-

inflammatory effects, leading to a reduction in C-reactive protein (CRP) levels from a mean of 16.65 ± 5.09 to 8.27 ± 2.02 ($p < 0.001$) and a decrease in lymphocyte levels from 397 ± 38.5 to 225 ± 49.5 ($p = 0.008$), indicating improvements in inflammation associated with the disease (Soleiman-Meigooni et al., 2022). The use of Rhubarb (*Rheum ribes L.*) was associated with clinical improvements, characterized by a reduction in both defecation frequency and stool volume (Khiveh et al., 2017). In patients undergoing hemodialysis, the application of lavender, rosemary, and orange essential oils showed no changes in prospective memory problems or medication adherence, suggesting limited effectiveness (Dehghan et al., 2022). A study examining the effects of massage and dry cupping on dysrhythmia in cardiac patients reported no changes in systolic blood pressure, diastolic blood pressure, heart rate, respiratory rate, oxygen saturation, or dysrhythmia, indicating that these interventions did not yield measurable benefits in this population (Hamzehnejadi et al., 2024).

Discussion

This review evaluated a broad range of ICAM modalities, encompassing both herbal and therapeutic interventions across various health conditions. Although numerous interventions demonstrated therapeutic efficacy, others exhibited limited impact, highlighting the need for further studies. One of the included studies support the clinical utility of specific herbal interventions, such as carrot seed (*Daucus carota*) for enhancing sexual desire in women diagnosed with HSDD, and Phoenix *dactylifera L.* pollen for improving sperm parameters in male infertility (Sadeghi et al., 2020). These results align with existing literature that supports the use of natural remedies for reproductive health (Zhou et al., 2019). Excessive reactive oxygen species or free radicals damage sperm cell membranes and DNA, reducing membrane fluidity and permeability (Wang et al., 2025). The condition leads to higher DNA fragmentation and cell death, contributing to infertility. The herb has been shown to help by removing free radicals and boosting antioxidant levels in seminal fluid. Herbal interventions for PMS, such as chamomile and valerian root extract, demonstrated significant efficacy in reducing psychological symptoms and dysmenorrhea-associated pain (Sharifi et al., 2014; Moghadam et al., 2016). These findings support existing research on the anti-inflammatory and anxiolytic properties of these herbs, which have been documented in previous studies (Mollabashi et al., 2021). While the exact causes of premenstrual syndrome remain unclear, prostaglandins are thought to be the primary mediators responsible for its symptoms. Chamomile, with its anti-inflammatory properties, contains compounds like chamazulene and alpha-bisabolol that help reduce symptoms (Mollabashi et al., 2021). Additionally, chamomile contains phytoestrogens, plant-based molecules that can mimic estrogen in the body, helping to replace low estrogen levels and reduce hot flashes (Minenko et al., 2019). Therefore, nurses must acquire competence in this area to effectively integrate it into maternity care services.

Several interventions mentioned in the included studies, such as Nigella sativa oil, Pilates training, and wet cupping therapies, were effective in managing chronic pain conditions, particularly knee osteoarthritis and chronic low back pain (Huseini et al., 2022; Karimi et al., 2021; Al-Eidi et al., 2019). The significant reductions in pain intensity and improvements in function highlight the value of integrating non-pharmacological interventions like Pilates and wet cupping into pain management protocols in nursing care. Earlier clinical trials on Nigella sativa have shown its antioxidant, anti-inflammatory, and immune-regulating effects, especially due to its active compound, thymoquinone (Mousavi et al., 2024). Moreover, that study suggests that thymoquinone helps in managing osteoarthritis by increasing anti-inflammatory gene activity, reducing enzymes that break down cartilage, and inhibiting inflammatory molecules like nitric oxide and cytokines (e.g., IL-1 β , IL-6, TNF- α). Meanwhile, dry cupping causes visible changes like bruising due to the vacuum effect, which pulls the muscle and stretches the microvasculature, increasing blood flow in the area. This enhanced circulation helps phagocytes clear out metabolites from the muscle and bone tissues, hence showed improvements in symptoms such as pain, morning stiffness, swelling, tenderness, joint creaking, and movement difficulties (Khan et al., 2013). Pilates training and exercise helps reduce peak landing forces, decrease knee stress (valgus and varus torques), and improve hamstring function which also eventually reduce the pain due to osteoarthritis (Meenakshi et al., 2021). In contrast, the lack of significant results for *Chamomilla* in labor pain and certain essential oils in postoperative pain management may suggest that these interventions are more condition-specific and might require personalized approaches.

In the field of mental health, complementary interventions—such as the use of *Cinnamomum tamala* for major depressive disorder and dhikr therapy for anxiety in cancer patients—have demonstrated therapeutic benefits (Ghaffari et al., 2020; Sulistyawati et al., 2019). Reciting dhikr induces calm and relaxation, which helps mitigate stress, anxiety, and other emotional disturbances. Furthermore, this practice promotes optimism and a positive mindset by exerting effect on emotions (Anwar et al., 2024). Dhikr enhances an individual's awareness of God's presence across all situations, illustrating that the act of remembrance carries a psychotherapeutic component. Consequently,

psychoreligious therapy is just as vital as conventional psychotherapy and psychiatric techniques, as it harnesses spiritual strength to build self-confidence and optimism (Rajaei, 2010). Combining herbal and spiritual therapies highlights the nature of mental health treatment, where biological, psychological, and spiritual factors interact in a dynamic way. Therefore, mental health nurses need to integrate these therapies into psychiatric care through an Islamic approach. This is important because mental healthcare should not rely solely on conventional psychological methods, but must also incorporate religious and spiritual dimensions.

The use of propolis, *Melissa officinalis* and *Juglans regia* L. for managing T2D demonstrated promising results in lowering fasting blood glucose and improving lipid profiles (Asadi et al., 2018; Abdoli et al., 2017). These findings are consistent with other studies that highlighted the metabolic benefits of natural compounds, particularly their antioxidant and anti-inflammatory effects (Sani et al., 2023). Propolis functions as an anti-inflammatory agent by inhibiting and downregulating TLR4, MyD88, IRAK4, TRIF, NLRP inflammasomes, NF- κ B, and their corresponding pro-inflammatory cytokines, including IL-1 β , IL-6, IFN- γ , and TNF- α (Zulhendri et al., 2022). Propolis also reduces the absorption of carbohydrates in the intestines, increasing glycolysis and glucose usage in the liver (Zakerkish et al., 2019). Although study agree that propolis has a beneficial effect on inflammation, its impact on interleukin levels has been reported inconsistently (Shang et al., 2020). It is proven that aromatic oils obtained from medicinal herbs reach lymphatic system by circulatory system and provide healing via interstitial fluid (Sharifi-Rad et al., 2017). Although the use of sweet orange and damask rose reduced pain intensity in the experimental group compared to the control group, their anti-nociceptive effects were not significant during the first 4 hours postoperatively. The most pronounced anti-nociceptive effect occurred at 12 hours postoperatively, a period when the patients' pain had subsided to a mild-to-moderate level. Therefore, the therapeutic effects of the herbs during the first 4 hours after surgery were not significant (Bargi et al., 2023).

The systematic review on the effects of ICAM plays a crucial role in advancing evidence-based practice by synthesizing existing data to provide a comprehensive understanding of its effectiveness. With consolidating findings from diverse studies, it establishes a foundation for practitioners to integrate complementary care into healthcare. This not only enhances the credibility of complementary medicine but also promotes its acceptance within the healthcare professional's community in various countries (Mahat et al., 2024). Furthermore, the review provides insights for healthcare policymakers, guiding the development of strategies that incorporate complementary medicine to improve holistic care. Clinicians can also utilize the findings to make recommendations to patients, particularly those seeking treatments aligned with Islamic values. In addition to improving clinical practices, systematic review contributes to the transformation of the complementary care by challenging misconceptions and validating its effectiveness. This encourages further research in understudied areas, driving innovation and expanding the evidence base.

The findings also support the integration of complementary care with conventional medicine, leading to hybrid treatment protocols (Mortada, 2024). For Muslim-majority regions, the review affirms the alignment of healthcare practices with Islamic teachings, building trust and encouraging the utilization of ICAM services. The review also underscores the economic and social implications of complementary medicine. Evidence of its cost-effectiveness can help reduce healthcare expenditures, especially for chronic conditions or in resource-limited settings. Furthermore, it advocates formal recognition and regulation of complementary medicine practices. Public awareness and empowerment are additional benefits, as the review educates individuals about the benefits and limitations of complementary medicine, enabling them to make decisions. Nurses play a pivotal role in facilitating the safe and effective integration of ICAM into patient care. They are responsible for assessing patients' use of ICAM therapies, monitoring for herb-drug interactions, and observing for adverse effects, particularly when ICAM is used alongside conventional treatments. Additionally, nurses contribute to policy and practice development by advocating for evidence-based inclusion of ICAM in care pathways and participating in research initiatives aimed at validating traditional therapies.

This review incorporates numerous research articles utilizing RCTs designs. Although RCTs are considered the gold standard in intervention research, one common limitation is the difficulty of blinding participants, researchers, or both. In certain types of interventions, such as cupping therapy or distinct treatments like acupuncture, blinding can be impractical or impossible. The lack of blinding can introduce bias, as participants' or researchers' awareness of the treatment group may influence their perceptions or assessments, potentially affecting the study's outcomes. This limitation can impact the internal validity of the results. Although blinding of certain interventions such as cupping therapy might be very difficult, blinding of outcome assessors and statistics should be performed as much as possible to minimize performance and assessment biases. Furthermore, recommending herbal remedies as alternatives to pharmacological treatments is challenging due to the difficulty in determining their relative effectiveness. Discrepancies were noted in the reported clinical outcomes, rendering the trial results incomparable due to several reasons such as

varying treatment durations (spanning weeks to months), monotherapy (single herb versus combinations) or adjunctive therapy, absence of a standard comparative agent, differing extracts due to lacking of dose standardization, variations in patient numbers and populations with differing degrees and severity of diseases or conditions, and inconsistent study endpoints. The variability in sample size and duration of interventions across the studies analyzed limits the generalizability of the findings. Likewise, the absence of long-term follow-up in many cases prevents an assessment of the sustained effectiveness of these treatments. Future research should focus on standardizing intervention protocols and conducting large-scale, long-term studies to provide more definitive evidence on the safety and efficacy of these treatments. Precaution should be taken when using herbs, and ideally, they should be approved by regulatory bodies like the FDA (Food and Drug Administration) to ensure safety, efficacy, and quality.

Conclusion

This systematic review demonstrates that ICAM holds significant potential as an adjunct strategy in both disease and symptom management, particularly in improving patient-reported quality of life and alleviating subjective symptoms such as pain, anxiety, and distress. However, the overall therapeutic efficacy remains difficult to generalize due to the high heterogeneity, varying methodological quality, and small sample sizes of the included clinical trials. To build a robust evidence base, future studies must prioritize rigorous, multi-center RCTs with intervention protocols, and clear biochemical or clinical endpoints. Furthermore, future systematic reviews should narrow their scope to evaluate ICAM's impact on specific disease categories—such as chronic metabolic disorders or oncology palliative care—and utilize formal meta-analysis to provide clearer clinical guidelines for integrating these traditional modalities into evidence-based healthcare frameworks.

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AI statements

The authors declare that no generative AI or text-based AI tools were utilized in the writing of this manuscript. All ideas, concepts, and review processes were independently developed and executed by the author group.

Author's declaration

All authors have made substantial contributions to the quality of the manuscript. Furthermore, they have thoroughly reviewed and approved the final version for submission and publication.

Availability of data and materials

The datasets generated and analyzed during the current study are available in the reference section. However, any additional information relevant to this topic can be obtained from the corresponding author upon reasonable request.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical clearance

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Publishers and journal's note

This review article is highly engaging and comprehensive, making it easily understandable and applicable to both holistic and clinical nursing practice. The choice of a systematic review design is highly appropriate, as this methodology is ideally suited for evaluating intervention-based studies. The discussion is presented in great detail, making it easier for readers to understand the development of research within the context of ICAM.

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Authors' insight

Key points

- The addition of "symptoms" alongside "disease" expands the review's utility, allowing to capture studies on palliative care and quality-of-life improvements (e.g., pain relief, anxiety reduction) rather than just clinical cures.
- The title clearly signals a bridge between traditional religious practices (Islamic Medicine) and modern healthcare frameworks CAM, appealing to both medical professionals and cultural standpoint.
- The title promises the highest standard of secondary evidence, which immediately signals strong methodology to journal editors and peer-reviewers.

Emerging nursing avenues

- Given that the majority of the included studies originate from Iran (84.4%), how generalizable are the clinical findings to broader global healthcare settings or diverse Muslim communities?
- What specific criteria were used to assess the safety and potential contraindications of these ICAM therapies when combined with conventional medical treatments?
- How do you plan to standardize and compare the diverse clinical outcomes across different studies, given that disease management and symptoms management use very different measurement scales?

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