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A SYSTEMATIC REVIEW ON EFFECTIVENESS OF COMPLEMENTARY AND ALTERNATIVE MEDICINE ON MENTAL DISORDER

Prof. (Dr)Mohd. Wasiullah[1*],Prof. (Dr) Piyush Yadav[2], Atul Kumar Maurya[3], Girijesh Yadav[4*]

1. Principal, Department of Pharmacy, Prasad institute of technology, Jaunpur, U.P., India
2. Head: Department of Pharmacy: Chemistry, Prasad institute of technology, Jaunpur, U.P., India
3. Scholar- Department of Pharmacy, Prasad institute of technology, Jaunpur, U.P., India.
4. Professor- Department of Pharmacy, Prasad institute of technology, Jaunpur, U.P. India

Corresponding Author: Atul Kumar Maurya, Research Scholar, Department of Pharmacy, Prasad institute of technology

Abstract

Complementary and alternative medicine (CAM) is increasingly used as an adjunct in managing mental disorders such as depression, anxiety, stress-related conditions, insomnia, and cognitive impairments. This systematic review evaluates the effectiveness, mechanisms, safety, and clinical integration of CAM therapies, including mind–body interventions, herbal medicines, nutraceuticals, traditional systems, and manipulative approaches. Evidence suggests CAM can improve symptoms and quality of life through neurotransmitter modulation, HPA axis regulation, anti-inflammatory and antioxidant effects, neuroplasticity, and psychosocial mechanisms. While generally safe, herb–drug interactions and special population considerations warrant caution. Limitations include heterogeneous protocols, small samples, and short follow-ups. Standardized interventions, large-scale trials, and long-term safety studies are needed. CAM, when integrated with conventional care, offers a complementary strategy to enhance holistic mental health outcomes.

Keywords: Complementary and alternative medicine; Mental disorders; Mind–body therapies; Herbal medicine; Integrative psychiatry; Neuroplasticity

1. Introduction

Mental illnesses, such as schizophrenia, bipolar disorder, depression, anxiety, and stress-related ailments, are major causes of disability and a worse quality of life worldwide (WHO, 2022). Although many patients find success with conventional pharmaceutical and psychotherapy therapies, these approaches are frequently hindered by side effects, incomplete response, high recurrence rates, and patient non-adherence (Cuijpers et al., 2016). As a result, during the past several decades, interest in complementary and alternative medicine (CAM) as supplemental or alternative therapies for mental health has increased dramatically.

CAM includes a wide range of interventions, such as mind-body therapies (like yoga, meditation, and mindfulness), biologically based therapies (like herbal medicines and nutraceuticals), traditional and indigenous medical systems (like Ayurveda and Traditional Chinese Medicine), manipulative and body-based therapies (like massage and acupuncture), and energy-based therapies (like Reiki and aromatherapy) (Sarris et al., 2014; NCCIH, 2023). These methods, which frequently emphasise holistic and patient-centered therapy, seek to enhance psychological well-being through neurobiological, psychophysiological, and psychosocial mechanisms.

The evidence is inconsistent, and safety concerns, such as herb-drug interactions, are still crucial, even though individual studies point to possible advantages of CAM in lowering symptom severity, improving quality of life, and assisting stress regulation (Izzo & Ernst, 2009; Posadzki et al., 2013). Evidence-based integrative mental healthcare must thus be guided by a systematic assessment of the effectiveness, mechanisms, safety, and therapeutic implications of CAM in mental diseases.

In order to identify research gaps and offer recommendations for integrating complementary and alternative medicine (CAM) into traditional psychiatric therapy, this review attempts to thoroughly synthesise existing information on the efficacy, safety, and mechanisms of CAM therapies in mental illnesses.

2. Methods

2.1 Review Design and Protocol Registration

To ensure clear and consistent reporting of evidence synthesis, this systematic review was carried out in compliance with the Preferred Reporting Items for Systematic Reviews and

Meta-Analyses (PRISMA) 2020 criteria (Page et al., 2021). The selection of studies, data extraction, synthesis, and literature identification were all guided by PRISMA principles.

To lessen bias and improve methodological rigour, a predetermined review methodology was created before the literature search (Moher et al., 2015). The identification, screening, eligibility, and inclusion phases of the PRISMA flow paradigm were followed in the research selection process (Liberati et al., 2009). Adherence to PRISMA 2020 principles guaranteed methodological openness and reproducibility even if the protocol was not registered in PROSPERO.

2.2 Eligibility Criteria (PICOS Framework)

The PICOS (Population, Intervention, Comparator, Outcomes, Study design) framework, which is advised for systematic reviews of healthcare interventions to guarantee targeted and repeatable evidence synthesis, was used to define the eligibility criteria for study selection (Liberati et al., 2009; Page et al., 2021).

Population (P):

According to standardised diagnostic criteria (DSM or ICD), studies including people of any age or gender who had been diagnosed with mental illnesses, such as depression, anxiety disorders, bipolar disorder, schizophrenia, stress-related disorders, and sleep disorders, were included.

Intervention (I):

Research evaluating complementary and alternative medicine (CAM) interventions, such as traditional medical systems, acupuncture, biologically based therapies (such as herbal medicines, dietary supplements), mind-body therapies (such as yoga, meditation, and mindfulness), and other non-conventional therapies.

Comparator (C):

Eligible comparators included placebo, no treatment, standard conventional therapy, or other CAM interventions.

Outcomes (O):

Changes in the intensity of mental health symptoms, psychological well-being, and quality of life as measured by validated clinical scales were the main outcomes. Adverse effects, safety, and tolerance were secondary results.

Study Design (S):

Included were controlled clinical trials, observational studies, cohort studies, and randomised controlled trials that were published in peer-reviewed publications. Non-peer-reviewed literature, case reports, editorials, and conference abstracts were not included.

2.3 Information Sources and Search Strategy

To find studies assessing the efficacy of complementary and alternative medicine (CAM) in mental disorders, a thorough literature search was carried out in PubMed/MEDLINE, Scopus, Web of Science, PsycINFO, and the Cochrane Library. These databases were selected to guarantee thorough coverage of psychological and biological literature.

Boolean operators (AND/OR) were used in search algorithms to combine MeSH terms and free-text keywords associated with CAM and mental diseases. Complementary and alternative medicine, "herbal medicine," "yoga," "meditation," "mindfulness," and "mental disorders," "depression," "anxiety," "bipolar disorder," and "schizophrenia" were among the key terms. The PubMed search method was modified to work with other databases.

Only English-language, peer-reviewed publications were included. A manual search was conducted for additional pertinent articles in the reference lists of eligible research. To guarantee transparency and reproducibility, the search and reporting procedure followed PRISMA 2020 principles (Page et al., 2021).

2.4 Study Selection Process

Duplicate records were eliminated once all records obtained from the database searches were loaded into reference management software. Using predetermined eligibility criteria, titles and abstracts were independently evaluated for relevance. After that, full-text publications of research that might qualify were evaluated for inclusion. To guarantee adherence to PRISMA guidelines, any disputes during screening or full-text review were settled through dialogue (Page et al., 2021).

2.5 Data Extraction and Management

A predetermined, standardised data extraction form was used to extract the data. Author information, year of publication, study design, demographic characteristics, kind of CAM intervention, comparator, outcome measures, and important findings were all extracted. In accordance with accepted systematic review procedures, data extraction was carried out methodically to guarantee accuracy and completeness (Higgins et al., 2022).

2.6 Risk of Bias and Quality Assessment

Using suitable, validated instruments based on research design, the methodological quality and bias risk of the included studies were evaluated. The Cochrane Risk of Bias tool was used to analyse randomised controlled trials, and standardised quality evaluation criteria were used to evaluate observational research. To ascertain the overall quality of the evidence, the evaluation concentrated on selection bias, performance bias, detection bias, attrition bias, and reporting bias (Higgins et al., 2022).

2.7 Data Synthesis Strategy

Using suitable, validated instruments based on research design, the methodological quality and bias risk of the included studies were evaluated. The Cochrane Risk of Bias tool was used to analyse randomised controlled trials, and standardised quality evaluation criteria were used to evaluate observational research. To ascertain the overall quality of the evidence, the evaluation concentrated on selection bias, performance bias, detection bias, attrition bias, and reporting bias (Higgins et al., 2022).

3. Classification of CAM Interventions in Mental Health

A wide range of therapy modalities are included in complementary and alternative medicine (CAM), which is being utilised more and more to treat and prevent mental illnesses. According to integrative health frameworks and psychiatric research literature, these interventions are typically categorised into mind-body therapies, biologically based therapies, traditional medical systems, manipulative therapies, and energy-based therapies (NCCIH, 2023; Sarris et al., 2014; Lake, 2007).

3.1 Mind–Body Therapies

The relationship between psychological processes and physiological control is the focus of mind-body therapy. Through modulation of the HPA axis, autonomic balance, and inflammatory markers, yoga has been extensively investigated in relation to depression, anxiety, and stress-related diseases, with evidence supporting benefits in mood, anxiety levels, and quality of life (Cramer et al., 2013; Pilkington et al., 2005).

According to Hofmann et al. (2010) and Kuyken et al. (2016), meditation and mindfulness-based interventions, such as mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT), are effective in lowering anxiety symptoms, preventing depressive relapse, and enhancing emotional regulation.

Physical activity, breathing, and mental concentration are all combined in Tai Chi and Qigong, which have been linked to better sleep, less depressive symptoms, and improved cognitive functioning, especially in older persons and those with long-term stress.(Wang et al., 2014; Yeung et al., 2018).

3.2 Biologically Based Therapies

Natural compounds that have physiological and neurochemical effects are used in biologically based therapies. With processes involving inhibition of serotonin, dopamine, and norepinephrine reuptake, herbal medications like Hypericum perforatum (St. John's wort) have been shown to be effective in treating mild to severe depression (Ng et al., 2017; Linde et al., 2008). Clinical research have shown that Withania somnifera, also known as ashwagandha, has anxiolytic and stress-relieving properties, possibly through cortisol decrease and antioxidant activity (Chandrasekhar et al., 2012; Lopresti et al., 2019).

Omega-3 fatty acids, B vitamins, magnesium, zinc, and probiotics are among the nutraceuticals and dietary supplements that have been studied as supplemental treatments for anxiety and depression. Research points to minor advantages, especially for those with inflammatory dysregulation or nutritional deficits.(Sarris et al., 2016; Jacka et al., 2017).

3.3 Traditional and Indigenous Medical Systems

Conventional medical systems offer comprehensive, customised methods to mental health treatment. Ayurveda uses herbal remedies, lifestyle changes, and mind-body techniques to

treat mental illness, which it views as an imbalance between biological and psychological principles (doshas) (Sharma & Chandola, 2011).

Acupuncture and herbal remedies are used in Traditional Chinese Medicine (TCM), which links mental illnesses to imbalances in Qi flow and organ systems. TCM-based treatments for depression, anxiety, and insomnia have been investigated in clinical trials with inconsistent but encouraging outcomes (Zhang et al., 2010; Butler & Pilkington, 2013).

Based on humoral theory, unani medicine treats mental illnesses with herbal, nutritional, and regimenal therapy; nevertheless, there is still little clinical evidence and more thorough research is needed.(Rahman et al., 2017).

3.4 Manipulative and Body-Based Therapies

In order to improve mental health, manipulative and body-based therapies place a strong emphasis on physical contact and body alignment. Through enhanced sleep quality and parasympathetic activation, massage treatment has been linked to decreases in stress hormones, anxiety, and depressive symptoms (Moyer et al., 2004; Field, 2014).

More research is being done on acupuncture for mental health issues like anxiety, sadness, and sleeplessness. The HPA axis, serotonergic and dopaminergic pathway modulation, and anti-inflammatory actions are among the suggested mechanisms (Smith et al., 2018; Armour et al., 2019).

3.5 Energy-Based and Other Therapies

The idea of harmonising biofields or influencing mental states through sensory stimulation is the foundation of energy-based therapy. Small clinical trials have shown that reiki can lessen tension and anxiety, although the quality of the data is still poor (Thrane & Cohen, 2014).

Through olfactory-mediated neurophysiological pathways, aromatherapy, especially with essential oils like lavender, bergamot, and chamomile, has demonstrated potential benefits in treating anxiety, mood disorders, and sleep difficulties (Koulivand et al., 2013; Perry & Perry, 2006). The necessity for more thorough randomised controlled trials is highlighted by the inconsistent evidence supporting energy-based therapies overall.

Table 1. Classification of CAM Interventions and Evidence of Effectiveness in Mental Disorders

CAM Category	Examples	Target Disorders	Level of Evidence	Key Findings
Mind–Body Therapies	Yoga, Meditation, Mindfulness, Tai Chi	Depression, Anxiety, Stress, Insomnia	High (RCTs, Meta-analyses)	Reduces symptom severity, improves quality of life, regulates stress response
Biologically Based Therapies	*Hypericum perforatum*, *Withania somnifera*, Omega-3	Depression, Anxiety, Bipolar (adjunct)	Moderate (RCTs, Systematic reviews)	Antidepressant/anxiolytic effects; may interact with psychotropic drugs
Traditional Systems	Ayurveda, TCM, Unani	Depression, Anxiety, Cognitive disorders	Low–Moderate	Preliminary evidence; requires standardization
Manipulative/Body-Based	Acupuncture, Massage	Anxiety, Depression, Stress	Moderate	Improves symptoms and relaxation; adjunctive use recommended
Energy-Based Therapies	Reiki, Aromatherapy	Stress, Anxiety	Low	Evidence limited; safe but effect size variable

4. Effectiveness of CAM in Specific Mental Disorders

The type of intervention, study methodology, and clinical severity all affect how successful complementary and alternative medicine (CAM) interventions are for different mental diseases. Evidence from randomized controlled trials and comprehensive reviews suggests that CAM therapies may act as supplementary or alternative choices in specified mental health situations.

4.1 Depression

The most researched mental illness in complementary and alternative medicine is depression. In mild to severe depression, herbal remedies, especially Hypericum perforatum (St. John's wort), have shown equal effectiveness to conventional antidepressants with fewer documented side effects (Linde et al., 2008; Ng et al., 2017).

Yoga, meditation, and mindfulness-based cognitive therapy (MBCT) are examples of mind-body therapies that have demonstrated notable decreases in the intensity of depression

symptoms and relapse rates, particularly when combined with traditional treatment (Cramer et al., 2013; Kuyken et al., 2016). In meta-analyses, nutraceuticals including B vitamins and omega-3 fatty acids have also shown mild antidepressant effects (Sarris et al., 2016).

4.2 Anxiety Disorders

There is evidence to support the use of many complementary and alternative medicine treatments for anxiety disorders. Meditation and mindfulness-based therapies have repeatedly shown moderate to significant benefits in lowering anxiety symptoms in people with panic disorder, social anxiety disorder, and generalised anxiety disorder (Hofmann et al., 2010).

Clinical investigations have demonstrated the anxiolytic benefits of herbal medications, such as Withania somnifera and kava (Piper methysticum), however the general use of these herbal agents is restricted due to safety concerns (Chandrasekhar et al., 2012; Sarris et al., 2011). Yoga and acupuncture have also been connected with symptom alleviation, particularly in stress-related anxiety.

4.3 Stress-Related Disorders

Stress-related diseases, such as burnout and adjustment problems, are frequently treated with complementary and alternative medicine (CAM). In addition to improving psychological well-being, yoga, meditation, tai chi, and qigong have been shown to significantly lower cortisol levels and perceived stress (Pascoe et al., 2017; Wang et al., 2014).

Although the quality of the data is still inconsistent and the effects are frequently fleeting, aromatherapy and massage therapy have demonstrated short-term benefits in stress reduction and relaxation (Moyer et al., 2004; Koulivand et al., 2013).

4.4 Bipolar Disorder

There is still little data to support the use of CAM for bipolar disorder. The most researched complementary and alternative medicine intervention is omega-3 fatty acids, which have shown promise in treating depressive episodes but not manic symptoms (Sarris et al., 2012).

Although CAM techniques are not advised as monotherapy in bipolar disorder due to the danger of mood destabilisation, mindfulness-based interventions may enhance emotional regulation and relapse prevention when used as supplementary therapies (Andreescu et al., 2008).

4.5 Schizophrenia and Psychotic Disorders

The main use of complementary and alternative medicine (CAM) for schizophrenia is as a supplement to antipsychotic therapy. Yoga treatment has showed benefits in negative symptoms, social functioning, and quality of life in randomized controlled trials (Varambally et al., 2012).

The effects of herbal and nutraceutical treatments, such ginkgo biloba and omega-3 fatty acids, have been inconsistent, with very slight improvements in unpleasant symptoms and cognitive function. In general, there is not enough data to support complementary and alternative medicine (CAM) as a stand-alone treatment for psychotic disorders (Sommer et al., 2012).

4.6 Sleep Disorders and Insomnia

Numerous complementary and alternative medicine treatments have shown promise in enhancing the quality of sleep. In those with chronic insomnia, mindfulness meditation, yoga, and tai chi have demonstrated notable improvements in sleep latency, duration, and quality (Black et al., 2015; Irwin et al., 2014).

Although results vary from study to study, herbal medicines including valerian and chamomile, as well as aromatherapy using lavender oil, have demonstrated some advantages (Fernandez-San-Martin et al., 2010).

4.7 Cognitive Disorders and Dementia

CAM treatments are mostly utilised to enhance quality of life and cognitive function in dementia and cognitive disorders. Tai chi and meditation are examples of mind-body therapies that have been linked to improvements in older individuals' executive function, memory, and attention (Wayne et al., 2014).

Many studies have been conducted on herbal remedies, especially ginkgo biloba. Meta-analyses have shown that these remedies may help with dementia, but the findings are still debatable (Yang et al., 2016). CAM treatments for dementia are typically viewed as supportive rather than curative.

5. Mechanisms of Action of CAM in Mental Disorders

Through a variety of biological and behavioural pathways, complementary and alternative medicine (CAM) interventions have therapeutic benefits on mental disorders. These processes frequently overlap and work in concert to affect inflammatory pathways, neurochemical balance, stress-response systems, and behavioural regulation.

5.1 Neurotransmitter Modulation

Serotonin, dopamine, norepinephrine, and gamma-aminobutyric acid (GABA) are among the central neurotransmitter systems that are affected by a number of complementary and alternative medicine treatments. It has been demonstrated that herbal remedies like Hypericum perforatum decrease serotonin, dopamine, and norepinephrine reuptake, resulting in antidepressant effects that are on par with traditional medication (Linde et al., 2008; Ng et al., 2017).

Increased GABA activity and serotonergic pathway modulation have been linked to mind-body therapies like yoga and meditation, which may have anxiolytic and mood-stabilizing effects (Streeter et al., 2010; Streeter et al., 2012). Additionally, it has been observed that acupuncture affects endogenous opioid release and monoaminergic transmission, which in turn affects mood and emotional control (Zhao, 2008).

5.2 Hypothalamic–Pituitary–Adrenal (HPA) Axis Regulation

One of the main characteristics of disorders related to stress, anxiety, and depression is dysregulation of the HPA axis. Yoga, mindfulness-based interventions, and tai chi are examples of complementary and alternative medicine (CAM) therapies that have been shown to improve HPA axis control by lowering cortisol levels and restoring normal stress hormone secretion (Pascoe et al., 2017; Thirthalli et al., 2013).

According to Chandrasekhar et al. (2012) and Lopresti et al. (2019), adaptogenic herbs, such as Withania somnifera, have demonstrated stress-buffering benefits through modulation of cortisol and sympathetic activity, indicating their function in anxiety and stress management.

5.3 Anti-inflammatory and Antioxidant Effects

It is becoming more well acknowledged that oxidative stress and chronic low-grade inflammation have a role in the pathophysiology of depression, schizophrenia, and cognitive

impairments. Numerous complementary and alternative medicine treatments include antioxidant and anti-inflammatory qualities. Nutraceuticals, such omega-3 fatty acids, have shown adjunctive advantages in mood disorders by reducing pro-inflammatory cytokines (Sarris et al., 2016; Berk et al., 2013).

Curcumin and ginkgo biloba, two herbal remedies utilised in traditional systems, have antioxidant properties and may guard against oxidative neuronal damage and neuroinflammation (Lopresti et al., 2014; Yang et al., 2016). Mind–body therapies have also been associated with reductions in inflammatory biomarkers, suggesting psychoneuroimmunological effects (Black & Slavich, 2016).

5.4 Neuroplasticity and Neurogenesis

Key characteristics of depression and cognitive disorders include decreased neurogenesis and impaired neuroplasticity, especially in the hippocampus. Increased cortical thickness and improved connectivity in areas connected to emotional regulation are among the structural and functional changes in the brain that have been associated with complementary and alternative medicine (CAM) interventions like yoga, meditation, and physical mind-body exercises (Hölzel et al., 2011; Fox et al., 2014).

In order to promote neuroplasticity and synaptic resilience, which are essential for mood stabilisation and cognitive performance, some nutraceuticals and herbal substances may increase the expression of brain-derived neurotrophic factor (BDNF) (Lopresti & Drummond, 2013).

5.5 Psychosocial and Behavioral Mechanisms

CAM treatments have important behavioural and psychological effects that go beyond biological processes. By enhancing emotional awareness, cognitive flexibility, and coping mechanisms, mindfulness-based therapies lessen rumination and maladaptive thought patterns that are frequently seen in depression and anxiety (Keng et al., 2011).

Self-efficacy, social connectivity, and health-promoting behaviours are all increased by yoga, tai chi, and group-based complementary and alternative medicine (CAM) practices. This improves psychological well-being and treatment compliance. Long-term self-management is crucial in chronic mental diseases, where these behavioural mechanisms are especially pertinent (Gard et al., 2014).

Table 2. Mechanisms of Action of CAM in Mental Disorders

CAM Intervention	Mechanisms	Targeted Outcomes	Representative References
Yoga, Meditation	↑ GABA, serotonin; ↓ HPA axis activity	Anxiety reduction, mood stabilization	Streeter et al., 2010; Pascoe et al., 2017
Hypericum perforatum	Serotonin, dopamine, norepinephrine reuptake inhibition	Antidepressant effect	Linde et al., 2008; Ng et al., 2017
Omega-3 Fatty Acids	Anti-inflammatory; ↑ BDNF	Depression, cognitive enhancement	Berk et al., 2013
Tai Chi, Qigong	↓ Cortisol; ↑ autonomic regulation	Stress, insomnia, mood	Wang et al., 2014
Ginkgo biloba	Antioxidant; neuroprotective	Cognitive disorders, dementia	Yang et al., 2016
Mindfulness-Based Interventions	Emotional regulation, cognitive flexibility	Anxiety, depression relapse prevention	Kuyken et al., 2016

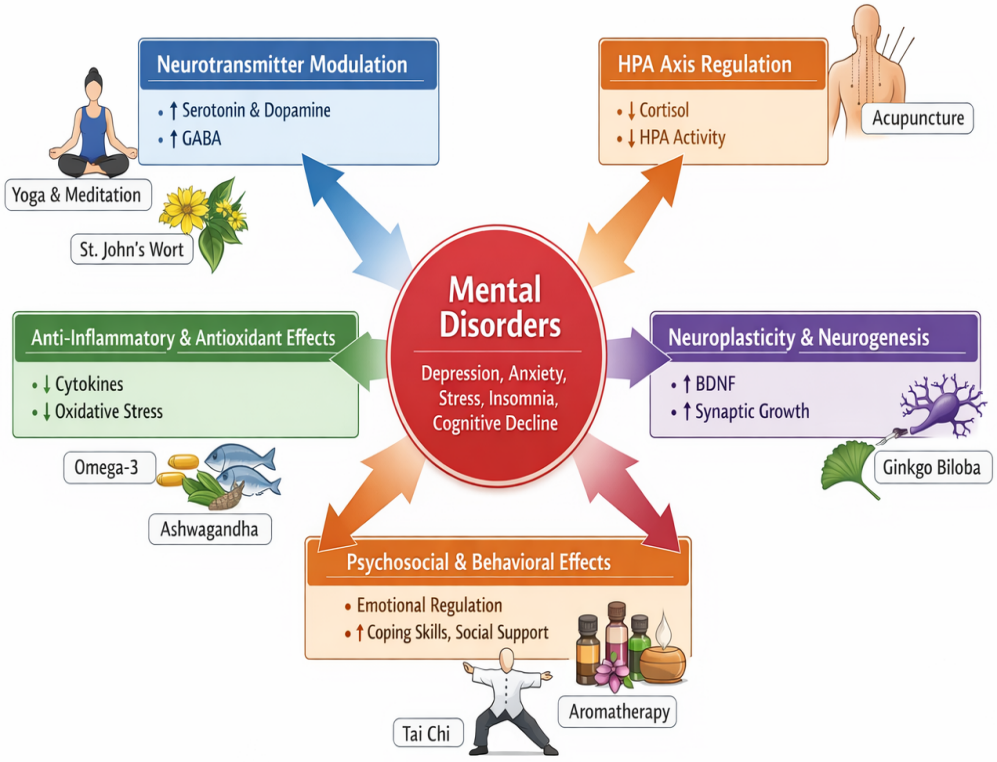

Figure 2: Mechanistic Pathways of CAM in Mental Disorders

6. Safety, Tolerability, and Herb–Drug Interactions

Despite the widespread belief that complementary and alternative medicine (CAM) is safe, mounting data suggests that it may have negative side effects and clinically significant interactions, especially when combined with traditional psychiatric drugs.

6.1 Adverse Effects of CAM Therapies

According to Cramer et al. (2015), the majority of mind-body therapies, such as yoga, meditation, and mindfulness-based practices, are generally well tolerated, with moderate and short side effects like musculoskeletal discomfort or brief emotional distress.

Hepatotoxicity, allergic responses, and gastrointestinal problems are possible side effects of biologically based treatments, especially herbal remedies and nutraceuticals. For instance, kava has occasionally been connected to hepatotoxicity, whereas Hypericum perforatum has been linked to photosensitivity and gastrointestinal problems (Teschke & Lebot, 2011; Linde et al., 2008). Although energy-based and manipulative therapies usually pose little physical risk, their usage as stand-alone treatments may impede access to evidence-based care.

6.2 Herb–Psychotropic Drug Interactions

One major safety problem in mental health care is herb-drug interactions. Antidepressants, antipsychotics, benzodiazepines, and mood stabilisers have lower plasma concentrations as a result of Hypericum perforatum's induction of cytochrome P450 enzymes, especially CYP3A4, and P-glycoprotein (Izzo & Ernst, 2009; Markowitz et al., 2003).

When coupled with psychotropics, other herbal remedies like ginkgo biloba and valerian may intensify the effects of medications that operate on the central nervous system, raising the possibility of drowsiness, bleeding, or serotonin syndrome. The significance of clinical monitoring and patient disclosure of CAM use is highlighted by these exchanges.

6.3 Special Populations (Elderly, Pregnancy, Comorbidities)

Particular populations are more susceptible to negative interactions and impacts. Herb-drug interactions and cognitive adverse effects are more likely to occur in older people because to polypharmacy and age-related pharmacokinetic alterations (Posadzki et al., 2013).

There is little data on the safety of complementary and alternative medicine (CAM) during pregnancy and lactation, and certain herbal remedies may be hormonal or teratogenic. Due to changed drug metabolism and excretion, individuals with concomitant medical disorders, such as hepatic or renal impairment, should use complementary and alternative medicine (CAM) with caution. In general, when evaluating CAM in these populations, a customised risk-benefit analysis is crucial.

7. Quality of Evidence and Risk of Bia

The quality of evidence supporting CAM interventions in mental disorders varies widely, influenced by methodological heterogeneity, study design limitations, and reporting practices.

7.1 Strength of Evidence Across CAM Modalities

Numerous randomised controlled trials and meta-analyses have provided the best evidence for mind-body therapies (such as yoga and mindfulness-based interventions) and specific herbal remedies (such as Hypericum perforatum in mild to moderate depression) (Cramer et al., 2013; Kuyken et al., 2016).

However, due in large part to small sample numbers and a lack of standardised methodologies, the evidence for energy-based therapies and some conventional medical interventions is still sparse or inconsistent.

7.2 Methodological Limitations of Included Studies

Small sample sizes, brief intervention durations, a lack of blinding, insufficient control groups, and inconsistent outcome measurements are common methodological flaws. Data synthesis and cross-study comparison are further complicated by heterogeneity in CAM formulations, doses, and practitioner experience (Ernst, 2006).

7.3 Publication Bias and Reporting Issues

In CAM research, publication bias is still a major issue because favourable outcomes are more likely to be published than null or negative ones. The trustworthiness of conclusions is further limited by selective outcome reporting and incomplete reporting of adverse occurrences. Improving the quality of the evidence requires adherence to standard reporting rules, such as PRISMA and CONSORT extensions for non-pharmacological therapies (Moher et al., 2010).

8. Clinical Implications and Integrative Mental Healthcare

The growing evidence base for complementary and alternative medicine (CAM) in mental disorders highlights opportunities for integrating these therapies into conventional psychiatric care. Clinical implementation should consider efficacy, safety, patient preferences, and contextual factors.

8.1 Role of CAM as Adjunct vs Standalone Therapy

When combined with conventional pharmaceutical or psychotherapy treatments, complementary and alternative medicine (CAM) interventions work best. When paired with traditional antidepressants or cognitive-behavioral treatment, mind-body therapies like yoga and mindfulness have been demonstrated to promote symptom reduction, improve quality of life, and lower relapse rates (Cramer et al., 2013; Kuyken et al., 2016).

Only moderate or subclinical diseases, such as minor depression or stress-related disorders, may benefit from the use of complementary and alternative medicine (CAM) as a stand-alone treatment. Evidence favours adjunctive therapy over monotherapy for serious mental diseases, such as schizophrenia, bipolar disorder, and severe depression, because of the possibility of insufficient symptom control (Varambally et al., 2012; Andreescu et al., 2008).

8.2 Patient Preferences and Cultural Acceptance

Cultural views, past experiences, and perceived safety all have an impact on patients' adoption of complementary and alternative medicine. According to surveys, patients frequently favour complementary and alternative medicine (CAM) methods that support holistic, mind-body, or naturalistic philosophies, especially in regions where access to traditional psychiatric care is restricted or stigmatised (Lake, 2007; Sarris et al., 2014).

While directing the safe and efficient use of CAM therapies, clinicians should respect patient preferences, participate in shared decision-making, and discuss evidence-based benefits and potential dangers.

8.3 Integration of CAM into Conventional Psychiatry

Integrative mental healthcare involves the **structured incorporation of CAM** into conventional psychiatric treatment plans. Strategies include:

- Screening patients for CAM use to prevent herb–drug interactions.
- Implementing mind–body interventions as adjunctive therapy for depression, anxiety, and stress-related disorders.
- Collaborating with certified CAM practitioners to maintain quality, standardization, and safety.
- Monitoring clinical outcomes and adverse events using validated psychiatric scales.

Such integrative approaches have been associated with improved patient satisfaction, adherence to treatment, and overall mental health outcomes, emphasizing the importance of evidence-based incorporation of CAM into psychiatric practice (Sarris et al., 2014; Lake, 2007).

9. Research Gaps and Future Directions

Despite increasing research on complementary and alternative medicine (CAM) in mental disorders, several important gaps remain that limit clinical translation and guideline incorporation.

9.1 Need for Standardized CAM Protocol

The heterogeneity of interventions, such as differences in yoga styles, meditation methods, herbal formulations, and dosage schedules, is a significant obstacle in CAM research. Reproducibility and meta-analyses are complicated by a lack of standardisation. To conduct rigorous clinical trials and compare efficacy across research, it is imperative to develop standardised, consensus-based methods for complementary and alternative medicine therapies. (Sarris et al., 2014; Cramer et al., 2013).

9.2 Long-Term Safety and Effectiveness

There is little data on long-term safety and persistent effects, and the majority of CAM studies concentrate on short-term results. Evaluation of long-term efficacy, relapse prevention, and cumulative adverse effects is necessary due to the chronic nature of many mental diseases, especially in vulnerable populations like the elderly or those with concomitant conditions (Posadzki et al., 2013; Ernst, 2006).

9.3 Large-Scale RCTs and Mechanistic Studies

Current research frequently comes from observational studies, pilot trials, or small sample numbers, which restricts its generalisability. Large-scale, multicenter randomised controlled studies are required to verify effectiveness and elucidate dose-response relationships. Furthermore, to comprehend how CAM therapies work, optimise interventions, and facilitate integration into traditional psychiatric care, mechanistic research examining neuronal, immunological, and psychophysiological pathways is essential (Berk et al., 2013; Streeter et al., 2012).

10. Limitations of the Review

Despite efforts to provide a comprehensive synthesis, several limitations must be acknowledged:

1. **Heterogeneity of Studies** – Included studies varied widely in CAM intervention type, duration, frequency, and outcome measures, limiting comparability and meta-analytic synthesis.
2. **Study Quality** – Many studies had small sample sizes, short follow-up periods, and methodological limitations such as lack of blinding or inadequate control groups, which may bias efficacy estimates.
3. **Publication Bias** – Positive findings are more likely to be published, potentially overestimating the effectiveness of CAM therapies. Negative or null results may be underrepresented.
4. **Language and Database Restrictions** – Only studies published in English and indexed in selected databases were included, potentially excluding relevant evidence from other sources or non-English literature.
5. **Limited Evidence in Certain Populations** – Evidence is sparse for special populations, such as pregnant women, elderly patients with multimorbidity, and individuals with severe psychiatric disorders.
6. **Mechanistic Evidence** – While proposed mechanisms are summarized, most studies do not directly link CAM interventions to neurobiological or psychophysiological outcomes, limiting causal inferences.

These limitations highlight the need for standardized, high-quality, long-term studies to strengthen the evidence base for CAM in mental health.

11. Conclusion

Complementary and alternative medicine (CAM) demonstrates promising adjunctive benefits in the management of mental disorders, particularly depression, anxiety, stress-related conditions, insomnia, and cognitive impairments. Evidence supports mind–body therapies such as yoga, meditation, and mindfulness, as well as herbal and nutraceutical interventions including *Hypericum perforatum*, *Withania somnifera*, and omega-3 fatty acids, which exert effects through neurotransmitter modulation, HPA axis regulation, anti-inflammatory and antioxidant activity, neuroplasticity enhancement, and psychosocial mechanisms. While generally well tolerated, CAM interventions require careful consideration of herb–drug interactions and patient-specific factors, especially in vulnerable populations. Limitations of current evidence include heterogeneity of protocols, small sample sizes, short follow-up durations, and methodological biases, highlighting the need for standardized interventions, large-scale randomized controlled trials, and long-term safety studies. Overall, when integrated with conventional psychiatric care, CAM offers a safe and effective complementary approach to improving mental health outcomes, enhancing patient engagement, and promoting holistic well-being.

12. Acknowledgement

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13. Conflict of Interest

The authors declare that there are no conflicts of interest associated with this review.

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