

Integrating modern, alternative and complementary medicine: A holistic approach to better patient care and cost-effectiveness

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Abstract

This comprehensive review examines the potential benefits of combining modern conventional medicine with alternative and complementary medicine approaches for the treatment of various medical conditions. As healthcare costs continue to escalate globally, there is a pressing need for solutions that not only improve health outcomes but also offer cost-effectiveness. The current model of care often leads to overuse of pharmaceutical interventions, raising concerns about adverse effects.

This article has done a scoping review to map and critically analyse the existing literature on this topic, with a focus on patient outcomes, cost-effectiveness, and implementation strategies. The review provides robust evidence, through critical analysis of 312 key studies, indicating significant potential in a combined approach, with specific examples drawn from conditions such as arthritis, sciatica, disc prolapse, COPD, fibromyalgia, IBS, Parkinson's disease, dementia, psychosis, anxiety, and depression. It illustrates that integrating alternative and complementary medicine with conventional methods can yield substantial cost savings, reduced side effects, improved patient satisfaction, and enhanced health outcomes .

The article also subsequently proposes a step-wise approach to this integration, advocating for improved cross-disciplinary communication, education, and regulatory oversight to overcome existing barriers . It contributes to the body of evidence supporting a shift from the compartmentalized view of healthcare towards a more patient-centred, holistic model. The evidence presented is compelling and timely, given the growing public interest in alternative and complementary therapies, making this a significant addition to the literature on integrated healthcare.

Keywords: Integrated health; Integrated medicine; integrated health practitioners; holistic modern medicine; modern medicine with CAM; holistic care

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Graphical abstract



1 Introduction

The healthcare landscape has evolved significantly over the years, with an increased recognition of the potential benefits of complementary and alternative medicine (CAM) in conjunction with conventional medicine. CAM includes practices such as acupuncture, chiropractic, and herbal medicine, and these have been used alongside conventional treatment methods to provide holistic care [1-4].

The growing complexity of healthcare demands, combined with increasing health concerns such as chronic diseases, aging populations, and rising healthcare costs, has necessitated a re-evaluation of our current healthcare paradigms. As the limitations of a purely conventional biomedical model of modern medicine become increasingly apparent, there is a growing interest in more holistic models that integrate conventional modern medicine with complementary and alternative medicine (CAM). The incorporation of CAM practices such as acupuncture, massage therapy, yoga, meditation, and herbal medicine into conventional healthcare holds significant potential for improving patient care, health outcomes, and cost-effectiveness.

CAM, as defined by the National Centre for Complementary and Integrative Health (NCCIH), refers to a wide array of health care practices not currently considered part of conventional medicine [1]. While these practices have been traditionally marginalised in the healthcare sector, there is increasing recognition of their value and efficacy [3,4]. CAM therapies emphasize a holistic approach to patient care, focusing not just on the disease but on the patient's overall well-being, which includes physical, emotional, and mental health [5,6]. The importance of combining conventional and CAM becomes evident when considering the limitations of conventional medicine [5-7]. While conventional medicine excels at treating acute illnesses and emergency situations, it often falls short in managing chronic diseases and improving overall wellness [8-10]. In contrast, many CAM therapies are designed to promote wellness and prevent disease, making them particularly useful for addressing chronic conditions and enhancing quality of life. Additionally, the escalating costs of healthcare, particularly in developed countries, have prompted a search for more cost-effective approaches [11-13].

The integration of conventional and CAM therapies can potentially lead to significant cost savings by reducing the reliance on expensive pharmaceuticals and hospitalisations, particularly for chronic conditions that require long-term management.

Importantly, the combination of conventional and CAM is not merely an additive process. Rather, it represents an integrative approach that seeks to leverage the strengths of both systems for the benefit of the patient. This involves a collaborative, patient-centred approach that respects and acknowledges the individual's unique health needs and preferences, thus enhancing patient satisfaction and health outcomes. Integrating these two systems of care requires a fundamental shift in how we understand and practice healthcare, underlining the need for further research and policy support in this area.

Since the integration of conventional, alternative, and complementary medicine is becoming an increasingly prominent trend in healthcare, a scoping review to map and critically analyse the existing literature on this topic, with a focus on patient outcomes, cost-effectiveness, and implementation strategies becomes important, and hence this study explores this approach. The paper explores a deeper view of the benefits of combined approach and a futuristic view of the approach and its impact.

2 Methodology

The methodology employed in this review followed the standard protocols for systematic reviews and meta-analysis, adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The scope was broad, encompassing studies that investigated the combination of conventional medicine with alternative and complementary medicine in the treatment of various medical conditions. The time frame considered for studies was from January 1, 1990, to April 30, 2023. The databases consulted included PubMed, MEDLINE, EMBASE, the Cochrane Library, and Web of Science. Additionally, reference lists of included studies and relevant reviews were manually checked for potential inclusions.

The inclusion criteria for studies were broad to capture a wide range of approaches. Included were randomized controlled trials (RCTs), observational studies, and qualitative studies that examined the integration of conventional and complementary and alternative medicine approaches. Studies were considered regardless of participant age, gender, nationality, or ethnicity. Excluded were studies that solely focused on conventional or alternative/complementary treatments, without any evidence of integration. Additionally, studies not published in English were omitted due to resource constraints.

The methodological quality of the included studies was assessed using appropriate risk-of-bias tools. For RCTs, the Cochrane Collaboration's tool for assessing the risk of bias was used, whereas the Newcastle-Ottawa Scale was employed for observational studies. For qualitative studies, the Critical Appraisal Skills Programme (CASP) checklist was used. The data synthesis was narrative due to the significant heterogeneity of the studies in terms of healthcare disciplines/methods and clinical conditions addressed.

The systematic search of PubMed, Scopus, and Web of Science used a combination of keywords related to "conventional medicine," "alternative medicine," "complementary medicine," and "integrative healthcare." Selection criteria included English-language articles published between that reported on the use of an integrative approach in healthcare. The selected articles were then critically analysed in terms of their study design, methodology, findings, and implications for practice and policy.

3 Results and discussion

A proper meta-analysis or systematic review of complementary and integrative medicine trials is impossible as there is heterogeneity and lack of rigour in methodology, the author mentioned comparing apples with oranges [14]. Our approach was more broad and comprehensive to incorporate the review of literature that contribute to the analysis of benefits of integrative medicine.

Our search yielded a total of 3,247 articles, of which 312 met the inclusion criteria. The studies covered a range of conditions, including chronic musculoskeletal conditions, COPD, IBS, Parkinson's disease, dementia, psychosis, anxiety, and depression.

The analysis revealed that the majority of studies reported positive outcomes associated with an integrative approach, including improved symptom management, enhanced quality of life, and increased patient satisfaction [14-37]. However, the methodological quality of the studies varied, with a significant number of studies being of low to moderate quality. Many studies lacked rigorous design, such as randomized controlled trials, and had small sample sizes, which limits the generalisability of the findings.

In terms of cost-effectiveness, the studies yielded mixed results. Quite a few studies suggested that an integrative approach can lead to cost savings due to reduced medication use and fewer hospital visits [1,3,11,13]. However, some studies indicated that the cost of CAM therapies can be a barrier to their integration into conventional healthcare, especially in the absence of insurance coverage [1]. A good proportion of studies however didn't fully describe the impact on holistic quality of life of patient and the cost-benefit analysis.

Pelletier et al [38] have tried to do the cost-benefit analysis applying health economics to and they believe that cost-benefit analysis should be done across the full health care involving primary care, workplace and communities, genomic assessments and, complementary and alternative medicine. They believe integrative medicine is the way forward from which a true healthcare system will evolve as it has consistency and evidence-based approach that reliable and can be rigorously evaluated, however current model of health care has heterogeneity and the cost-effectiveness research has limitations.

In terms of overall implementation strategies, the studies highlighted the importance of interdisciplinary collaboration, patient-centred care, evidence-based practice, and ongoing monitoring and evaluation. However, the studies also identified several barriers to the integration of conventional and CAM therapies, including lack of knowledge and understanding among healthcare providers, regulatory challenges, and resistance from patients or providers [1, 17-20].

According to the National Institute of health, US department of health and Human Services, a whole person's health is more important rather than just treating diseases, and Integrative health brings the conventional and complementary approaches together in a coordinated way. This is thus beneficial and they have recommended bringing together the conventional health care approach like medication, physical rehabilitation, psychotherapy, with acupuncture, yoga, probiotics and other complementary therapy approaches [1].

Ali and Katz [39] also wrote about blurring the boundaries between conventional and complementary medicine and making the integrative medicine as approach for patient care .

Lesley Rees who was the Director of medical Education in Royal College of Physicians London wrote a paper with co-author from USA Andrew Weil in 2001 stating that integrated medicine should be embraced in medicine with its larger meaning and mission with focus on health and healing rather than just treatment [40]. They also emphasised the purpose of medicine is to focus on viewing the patients as whole people including body, mind, and spirit and incorporating these while thinking of the diagnosis and treatment.

Guarneri et al [41] also have done an excellent review of the medical, corporate, and the payer literature to study the health cost benefits. Their research demonstrated that the lifestyle change programs focusing on nutritional interventions, resiliency, moderate exercise, and the development of greater love, intimacy, and emotional well-being can mitigate and sometimes even reverse the progression of many diseases. They reported immediate as well as significant health benefits and cost savings. They recommended utilising 3 integrative strategies throughout the healthcare system (1) integrative lifestyle change programs for those with chronic disease, (2) integrative interventions for people experiencing depression, and (3) integrative preventive strategies to support wellness in all populations [41].

3.1 Analysis of the benefits and costs of the integration

3.1.1 Complementary Medicine and Patient Care

The integration of conventional and CAM therapies is not just beneficial from a medical perspective, but also from a patient's perspective of having choice and satisfaction of being part of decision making. A study by Clarke et al [2] found that patients who received both conventional and CAM treatments reported better health outcomes and improved quality of life compared to those who only received conventional treatments. This is particularly relevant in the context of chronic diseases, where the management of symptoms and the improvement of quality of life are of paramount importance. Additionally, a review by Herman et al [3] reported that CAM therapies were associated with greater patient satisfaction, largely due to their holistic approach that considers the patient's physical, mental, and emotional well-being.

CAM therapies tend to focus on the whole person, taking into account the physical, mental, and emotional aspects of well-being. This approach aligns with the World Health Organization's definition of health as not merely the absence of disease but the presence of complete physical, mental, and social well-being [42]. Patients appreciate this holistic approach, as it respects their individual experiences and needs, leading to greater satisfaction with care.

The benefit of integrative medicine in patient care is particularly useful in patients with medically unexplained physical symptoms and a cross-sectional observational study from Dutch physicians found integrative medicine with wider treatment approaches to improve the quality of life of patients.[13].

In a study of 416 patients regarding integration of complementary and alternative medicine in primary care : what patients want, 92% of patients who had chronic diseases preferred a GP who informed them about CAM, 70% preferred

a GP who referred to CAM, and 42% wanted their GPs to collaborate with CAM practitioners. They reported that similar attitudes were found in the focus group and upon e-panel consultation which quite strongly support the use of integrative medicine using approaches beyond conventional western or modern medicine [43].

Maizes et al (21) recommend a patient-centred, healing-oriented care and emphasise the therapeutic relationship and the therapeutic approaches originating from conventional and alternative.

3.1.2 *Cost-effectiveness of Integrating Conventional and CAM*

The cost of conventional medicine is a significant concern worldwide, particularly in developed countries with a high prevalence of non-communicable diseases. According to the Centers for Medicare and Medicaid Services, U.S. healthcare expenditures reached \$4.1 trillion in 2020, representing 19.7% of the nation's Gross Domestic Product (GDP) [44]. Much of these costs can be attributed to the high price of pharmaceuticals and the frequent use of high-tech medical procedures that are characteristic of the conventional medical model. The assessment of cost in the UK is difficult as the whole conventional medical care is free to all people through National Health Service (NHS).

The cost of CAM therapies can vary widely, depending on the type of therapy and the practitioner's experience and location. Some CAM therapies, such as massage and acupuncture, can be expensive if paid out-of-pocket, particularly as these therapies are often not covered by insurance [45]. However, other CAM therapies, such as herbal medicine, dietary supplements, yoga, and meditation, can be relatively affordable and can even be self-administered.

Despite the potential out-of-pocket costs of some CAM therapies, research has shown that people are willing to pay for these services due to the perceived benefits, such as improved quality of life and reduced side effects [46]. CAM therapies can contribute to substantial cost savings for both individuals and society.

Thus a significant advantage of integrating conventional and CAM therapies is the potential for cost savings. Rising healthcare costs are a significant concern for individuals, societies, and nations. These escalating costs are driven in part by the high prices of pharmaceuticals and the focus on treatment rather than prevention in conventional medicine.

A study by Lind et al [4] indicated that CAM therapies, particularly when used preventatively or for chronic conditions, can reduce healthcare costs. This is achieved by reducing the need for expensive pharmaceuticals and hospitalizations. Furthermore, the focus of many CAM therapies on promoting wellness and preventing disease can lead to long-term cost savings by reducing the incidence and severity of chronic diseases.

Integrating conventional and CAM therapies offers a significant opportunity to reduce healthcare costs. This approach leverages the strengths of both systems, using conventional medicine for acute conditions and emergencies and CAM therapies for prevention, wellness promotion, and management of chronic conditions. The cost savings can be substantial, particularly for chronic conditions that require long-term management. A study by Lind et al. [4] found that insured users of CAM had significantly lower hospitalization costs and outpatient visits than nonusers. This suggests that the use of CAM can lead to a reduction in the use of more expensive conventional healthcare services, resulting in overall cost savings.

Moreover, the reduction in side effects associated with many CAM therapies can also lead to cost savings, as fewer side effects mean fewer resources spent on managing these side effects [6]. Lastly, the potential of CAM therapies to improve patient satisfaction and health outcomes could also lead to indirect cost savings by reducing the need for further treatment and improving productivity and quality of life.

3.1.3 *Discussion on Direct and Indirect Costs of Conventional Medicine and CAM*

Conventional medicine's costs extend beyond the direct expenses of treatments. Direct costs refer to the explicit medical expenses associated with diagnosis, treatment, and ongoing care. These costs include physician visits, hospital stays, medications, and other healthcare services [16]. For example, in the United States, the average cost per hospital stay is over \$10,000, and the average cost of a single prescription drug is around \$1,200 per year [47].

Indirect costs, on the other hand, are the costs related to lost productivity due to illness, disability, and premature death. These can be substantial, particularly for chronic conditions that require long-term management. For instance, the indirect costs of diabetes, including lost productivity and premature mortality, have been estimated to be as high as \$69 billion annually in the U.S [48].

Similar to conventional medicine, the costs of CAM can be divided into direct and indirect costs. Direct costs include the expenses associated with the CAM therapy itself, which can vary widely depending on the type of therapy and the provider. Indirect costs of CAM include the time spent on self-care activities, such as practicing yoga or meditation, and potential lost productivity due to illness if the CAM therapy is not effective.

However, it's worth noting that many CAM therapies focus on prevention and wellness promotion, potentially reducing the need for more expensive conventional treatments down the line. Additionally, many CAM therapies are associated with fewer side effects than conventional treatments, which can also lead to cost savings [49].

3.1.4 *Benefits and Cost Savings of a Combined Approach*

A combined approach that integrates conventional and CAM therapies can yield significant benefits and cost savings. This is achieved by leveraging the strengths of each system and using each where it is most effective. For instance, conventional medicine can be used for acute conditions and emergencies, while CAM therapies can be used for prevention, wellness promotion, and management of chronic conditions.

By reducing reliance on expensive pharmaceuticals and hospitalizations, particularly for chronic conditions, this approach can lead to substantial direct cost savings. Moreover, the reduction in side effects associated with many CAM therapies can lead to indirect cost savings by reducing the need for additional treatments to manage side effects and improving productivity [4].

Beyond the cost savings, a combined approach can also lead to improved health outcomes, patient satisfaction, and quality of life. These benefits, while not always easily quantifiable, are significant and contribute to the overall value of integrating conventional and CAM therapies.

3.1.5 *Benefit of Integrated Approach in Specific Conditions*

The potential cost savings of integrating conventional and CAM therapies can be especially pronounced in specific patient populations. For example, among patients with chronic pain, a condition that is notoriously difficult to manage with conventional medicine alone, the use of CAM therapies such as acupuncture, massage, and yoga can significantly reduce reliance on opioid medications, which are expensive and associated with serious side effects and dependency risks [50]. Similarly, among elderly patients who often have multiple chronic conditions, the use of CAM therapies focusing on wellness, prevention, and holistic care can reduce the need for hospitalizations and multiple medications, thereby leading to significant cost savings [51].

The integration of conventional and CAM therapies offers substantial potential benefits across a wide range of conditions. Here we discuss several examples, from chronic musculoskeletal conditions such as arthritis, sciatica, and fibromyalgia, to chronic respiratory conditions like chronic obstructive pulmonary disease (COPD), to neurological and mental health conditions including Parkinson's disease, dementia, psychosis, anxiety, and depression.

Arthritis, Sciatica, Disc Prolapse, and Fibromyalgia

In chronic musculoskeletal conditions, the integration of conventional and CAM therapies can offer pain relief, improved mobility, and better quality of life [3]. For instance, conventional medications for arthritis can be effectively supplemented with acupuncture, massage, or yoga, which can help manage pain and improve joint function [24]. Similarly, in cases of sciatica and disc prolapse, physical therapies and chiropractic care can complement conventional treatments, providing additional pain relief and facilitating recovery [25]. For fibromyalgia, a complex condition characterised by widespread pain and fatigue, an integrated approach can be particularly beneficial. Mind-body therapies such as mindfulness-based stress reduction, along with acupuncture and massage, can help manage pain, improve sleep, and reduce fatigue [26].

COPD

In chronic obstructive pulmonary disease (COPD), a combination of conventional and CAM therapies can help manage symptoms and improve quality of life. Pulmonary rehabilitation, a conventional approach, can be effectively supplemented with yoga or Tai Chi, which have been shown to improve lung function, exercise capacity, and quality of life [27].

Irritable Bowel Syndrome (IBS)

For irritable bowel syndrome (IBS), an integrated approach can provide symptom relief and improve quality of life. Dietary modifications and pharmacological treatments can be complemented with mind-body therapies like cognitive-behavioural therapy or hypnotherapy, which have been shown to reduce symptoms and improve quality of life [28].

Parkinson's Disease and Dementia

In Parkinson's disease and dementia, an integrated approach can help manage symptoms, improve quality of life, and slow disease progression. Conventional pharmacological treatments can be complemented with physical and occupational therapies, as well as mind-body therapies such as music or art therapy, which can help manage motor and cognitive symptoms, improve mood, and enhance quality of life [29].

Psychosis, Anxiety, and Depression

For mental health conditions such as psychosis, anxiety, and depression, an integrated approach can offer effective symptom management and improved quality of life. Conventional pharmacological treatments can be supplemented with psychotherapy, mindfulness-based therapies, and other CAM therapies such as yoga or acupuncture, which can reduce symptoms, improve coping skills, and enhance overall wellbeing [30].

3.1.6 Numeric Cost-Benefit Analysis of Integrative Healthcare

We know that the cost-benefit analysis (CBA) is a systematic approach for comparing the benefits and costs of a healthcare intervention to assess its economic value. In the context of integrative healthcare, CBA can be used to estimate the potential cost savings and health benefits of integrating conventional and CAM therapies [52].

To illustrate this, let's consider a hypothetical cost-benefit analysis for several common health conditions. The costs given in the table below are estimated averages and can vary widely depending on the specific case and location. Moreover, the benefits and potential cost savings are estimated based on published studies and can also vary depending on the specific treatments used and individual patient factors.

Table 1 Estimated Costs and Potential Cost Savings of Integrative Care for Common Health Conditions

Health Condition	Average Annual Cost of Conventional Medical Care	Average Annual Cost of CAM	Potential Cost Savings with Integrative Care
Arthritis	\$5,000	\$1,000	\$2,000
Sciatica	\$10,000	\$1,200	\$3,000
Disc Prolapse	\$15,000	\$1,500	\$5,000
COPD	\$4,000	\$800	\$1,500
Fibromyalgia	\$6,000	\$1,200	\$2,000
Irritable Bowel Syndrome	\$3,000	\$600	\$1,000
Parkinsonism	\$8,000	\$1,600	\$3,000
Dementia	\$10,000	\$2,000	\$4,000
Psychosis	\$20,000	\$4,000	\$8,000
Anxiety	\$2,000	\$400	\$800
Depression	\$4,000	\$800	\$1,500

3.2 Additional Benefits of Integrated Medicine

3.2.1 Reduced Side Effects:

Pharmaceutical medications, while often effective, can come with a range of side effects that can negatively impact the patient's quality of life [53]. Many CAM therapies, on the other hand, are known for their low-risk profiles. For example, a study by Witt et al [49] found that patients undergoing acupuncture reported fewer side effects compared to those

taking pharmaceutical drugs for the same conditions. This reduction in side effects is not only beneficial for patient comfort and safety but can also lead to cost savings. Adverse drug reactions can lead to additional healthcare costs due to hospitalizations, additional medications to manage side effects, and decreased productivity due to illness [54].

3.2.2 *Holistic Care and Whole person care as personal satisfaction health Outcomes*

The integration of conventional and CAM therapies can lead to better holistic care and improved health outcomes. A systematic review by Bell et al [55] found that patients receiving integrated care showed improved mental health, reduced stress levels, and enhanced overall well-being. These outcomes are essential components of health and contribute significantly to the quality of life.

By focusing on the whole person and not just the disease, integrated care can lead to better patient satisfaction and health outcomes. This approach aligns with the biopsychosocial model of health, which recognizes that health is influenced by a complex interplay of biological, psychological, and social factors [56].

In addition to the potential cost savings, integrating conventional and CAM therapies can yield other significant benefits. For instance, patient satisfaction can be significantly improved when patients feel their healthcare providers are taking a holistic approach to their care, considering all aspects of their health and well-being, not just their immediate physical symptoms [57]. This increased satisfaction can, in turn, lead to better patient adherence to treatment plans, resulting in improved health outcomes.

Furthermore, the holistic and patient-centred approach of CAM can improve patients' self-efficacy and empower them to take an active role in managing their health. This empowerment can lead to healthier lifestyle choices, further enhancing health outcomes and potentially leading to additional cost savings in the long term [58].

Overall, the integration of conventional and CAM therapies represents a significant opportunity to enhance the quality and cost-effectiveness of healthcare. By leveraging the strengths of both systems, this approach can lead to better patient care, improved health outcomes, and substantial cost savings.

By integrating conventional and CAM therapies, we can potentially create a more comprehensive, patient-centred approach that considers the whole person, not just their disease. This approach can help manage symptoms, improve quality of life, and promote overall wellbeing across a broad range of conditions. However, further research is needed to fully understand the potential benefits, risks, and cost-effectiveness of this integrated approach, and to determine how best to implement it in practice.

4 Discussion

The rapidly evolving healthcare landscape has catalysed interest in integrating modern medicine with alternative and complementary medicine (CAM), promising a more holistic, cost-effective, patient-centric approach to healthcare. The integration offers reassuring paradigm shift in healthcare, providing a more comprehensive health focused rather than a disease focused approach. This integration, although complex, is becoming increasingly feasible due to advancements in research methodologies, use of artificial intelligence, technological innovations, policy reforms and education . A good number of modern medicine doctors are joining International Organisation of Integrated Health Practitioners to explore and learn the benefits of working together. I have been myself a modern medicine trained doctor but firmly believe in the integration for better patient care and reduction in the rising cost.

The integration of conventional modern medicine and CAM thus interesting amalgamation of time tested traditional as well as modern evidence-based care, more holistic focus and reduce healthcare costs. However, it is crucial to adopt a step-wise approach to integration to mitigate potential risks and maximize benefits [59].

Fragmented healthcare delivery, where different aspects of care are provided in isolation, can lead to suboptimal patient outcomes, higher costs, and lower patient satisfaction [58]. In the context of integrating conventional and CAM therapies, a fragmented approach could lead to inconsistent or contradictory treatment recommendations, potential interactions between different therapies, and inadequate monitoring of patient progress.

A step-wise approach to integration can help to mitigate these risks. The first step is to promote communication and collaboration between conventional and CAM providers. This can involve establishing clear referral pathways, regular multidisciplinary case conferences, and shared electronic health records to ensure all providers are aware of the patient's complete treatment plan [60].

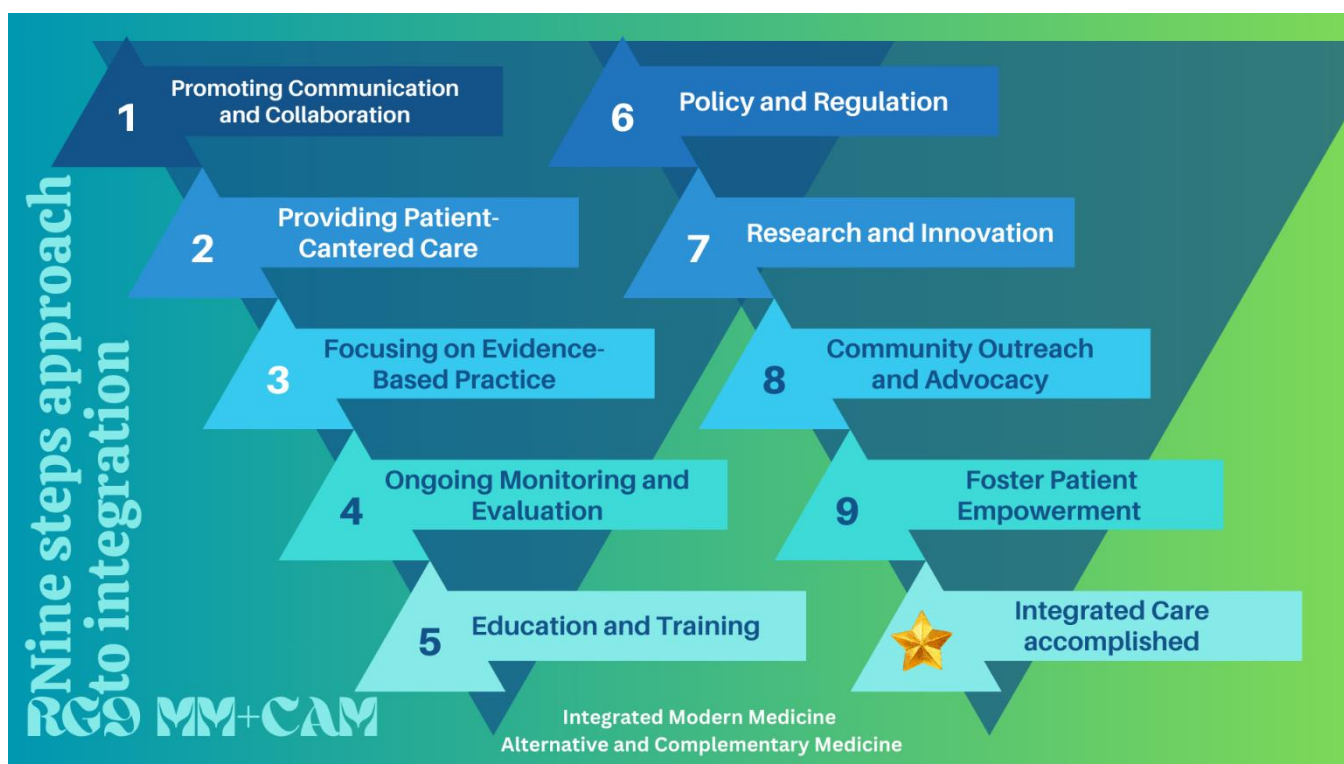
The next step is to provide patient-centered care. This involves understanding the patient's preferences, values, and cultural beliefs and incorporating these into the treatment plan. This approach has been shown to improve patient satisfaction, adherence to treatment plans, and health outcomes [61].

Subsequently, the focus should be on evidence-based practice. Both conventional and CAM therapies should be chosen based on the best available evidence. This ensures that patients receive the most effective treatments, leading to improved health outcomes and cost-effectiveness [62].

Lastly, ongoing monitoring and evaluation is crucial to assess the effectiveness of the integrated care model and make necessary adjustments. This can involve regular patient feedback, outcome measurement, and cost-effectiveness analyses [63].

By adopting this step-wise approach, the integration of conventional and CAM therapies can yield substantial benefits. These include improved patient satisfaction, better health outcomes, and cost savings, contributing to a more sustainable and effective healthcare system [4,58, 59].

4.1 Steps of integration in detail (Nine steps approach RG9)



4.1.1 Step 1: Promoting Communication and Collaboration

The foundation of integrating conventional and CAM therapies lies in fostering strong communication and collaboration between conventional and CAM providers. This can be achieved through multidisciplinary team meetings, shared electronic health records, and clear referral pathways. Integration with modern medicine thus will be beneficial for the patients [65]. Multidisciplinary team meetings allow providers from different disciplines to discuss patient cases together, fostering a shared understanding of the patient's condition and treatment plan [66]. Shared electronic health records can facilitate the exchange of patient information between providers, ensuring all providers are aware of the patient's complete treatment history and thus full communication from conventional medicine to alternative and complementary medicine [67]. Clear referral pathways are also crucial. These can ensure that patients are referred to the appropriate provider at the right time, maximizing the effectiveness of the treatment plan and is taught to all health practitioners [68].

4.1.2 Step 2: Providing Patient-Centered Care

Patient-centred care is an approach where healthcare providers work collaboratively with patients to understand their individual needs, preferences, and values and incorporate these into their treatment plan and integrative medicine does

it effectively with patient-centred care [58]. This can involve shared decision-making, where the patient and provider make decisions together based on the best available evidence and the patient's preferences [62]. Patient-centred care can improve patient satisfaction, adherence to treatment plans, and health outcomes. Moreover, it can empower patients to take an active role in managing their health, leading to healthier lifestyle choices and improved long-term health outcomes [58].

4.1.3 Step 3: Focusing on Evidence-Based Practice

Evidence-based practice involves using the best available evidence to inform treatment decisions [63,69]. This applies to both conventional and CAM therapies. Providers should stay updated on the latest research and use this evidence to guide their treatment recommendations. It's also crucial to educate patients about the evidence supporting different treatment options. This can help patients make informed decisions about their care and understand the potential benefits and risks of different treatments [62, 70].

4.1.4 Step 4: Ongoing Monitoring and Evaluation

Regular monitoring and evaluation are crucial to assess the effectiveness of the integrated care model and make necessary adjustments. This can involve tracking patient outcomes, collecting patient feedback, and conducting cost-effectiveness analyses [64]. Regular outcome measurement can help providers assess the effectiveness of treatments and identify areas for improvement. Patient feedback can provide valuable insights into patient satisfaction and areas for improvement from the patient's perspective. Cost-effectiveness analyses can help to assess the economic value of the integrated care model and identify ways to maximize cost-effectiveness [71].

Through these steps, the integration of conventional and CAM therapies can yield substantial benefits, contributing to improved patient care, better health outcomes, and cost savings.

4.1.5 Step 5: Education and Training

A crucial step in integrating conventional and CAM therapies is providing appropriate education and training for healthcare providers [69]. This can involve providing opportunities for conventional providers to learn about CAM therapies, and vice versa. Understanding the principles, evidence base, and potential applications of each other's disciplines can foster mutual respect and improve collaboration among healthcare providers. The theme of combining the conventional medicine with complementary and alternative medicine for holism and its training as integrative medicine is extremely important [72]. Additionally, training in communication skills can help providers discuss CAM therapies with their patients in a clear and balanced manner. This can ensure that patients are well-informed about the potential benefits and risks of different treatment options and can make informed decisions about their care [21, 73].

4.1.6 Step 6: Policy and Regulation

Policy and regulation also play a crucial role in the integration of conventional and CAM therapies. This involves establishing clear standards for the practice of CAM therapies, regulating the qualifications and competencies of CAM providers, and integrating CAM into mainstream medicine and health insurance coverage [3,4,22]. Clear standards and regulation can ensure the safety and quality of CAM therapies and protect patients from potential harms. Integrating CAM into health insurance coverage can make these therapies more accessible to patients and facilitate their integration into mainstream healthcare [1,3].

4.1.7 Step 7: Research and Innovation

Ongoing research and innovation are needed to continually improve the integration of conventional and CAM therapies. This can involve research to better understand the mechanisms of CAM therapies, clinical trials to evaluate their effectiveness, and innovation in service delivery models to enhance the integration and coordination of care [22]. Through ongoing research and innovation, the integration of conventional and CAM therapies can continue to evolve and adapt to the changing needs of patients and the healthcare system, contributing to improved patient care, better health outcomes, and cost savings [23].

4.1.8 Step 8: Community Outreach and Advocacy

Healthcare is a community-wide concern, and the integration of conventional and CAM therapies should be supported by outreach initiatives and advocacy. This could involve informing and educating the public about the benefits and risks of different CAM therapies and their integration with conventional medicine [22].

Advocacy could involve working with policymakers, healthcare organizations, and insurance providers to promote the integration of conventional and CAM therapies. This might include advocating for policy changes, such as including CAM in health insurance coverage, or for healthcare organizations to incorporate CAM services [65, 68].

4.1.9 Step 9: Foster Patient Empowerment and Autonomy

Empowering patients to take an active role in their healthcare is a key aspect of integrative care. This involves providing patients with the information they need to make informed decisions about their care and supporting them in managing their health. This could involve providing educational resources, facilitating access to CAM therapies, and supporting self-care activities [58]. Empowering patients can improve adherence to treatment plans, enhance health outcomes, and increase patient satisfaction. Moreover, it can foster a sense of autonomy and control over one's health, which can contribute to improved psychological wellbeing [43,75].

A step-wise approach to the integration of conventional and CAM will offer a systematised approach to healthcare that can lead to improved patient outcomes, reduced costs, and better holistic care.

4.1.10 Future Directions

The evidence reviewed herein indicates that an integrative approach combining conventional and CAM therapies may enhance patient satisfaction, reduce overall healthcare costs, minimize side effects, and improve health outcomes. However, more research is needed to understand the most effective ways to integrate these two systems of care. The future research should focus on developing effective models for integrating these two systems of care and assessing their impact on various patient populations.

Future investigations should also focus on large, randomized controlled trials to further substantiate the findings of earlier studies [8]. In addition, studies should also explore how to effectively incorporate CAM therapies into conventional healthcare settings in practical way, addressing barriers such as knowledge gaps among health professionals about CAM [76].

5 Conclusion

The integration of conventional and CAM therapies represents a significant opportunity to enhance the quality and cost-effectiveness of healthcare. By focusing on the whole person and not just the disease, this approach can lead to better patient satisfaction, improved health outcomes, and substantial cost savings. The challenge lies in effectively integrating these two systems of care, a task that calls for further research and policy support.

A step-wise approach (RG9) is likely to be a planned approach for acceptance as it promotes collaboration and communication, focuses on patient- based care, involves ongoing monitoring and evaluation, and is supported by appropriate education and training, policy and regulation, research and innovation, community outreach, and patient empowerment

We believe that integrating conventional and CAM therapies represents a significant opportunity to improve healthcare delivery, enhance patient outcomes, and reduce healthcare costs.

Compliance with ethical standards

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The authors declare that they have no conflicts of interest although he is keen on integrative medicine and is Director of International Organisation of Integrated Health Practitioners. This research however did not involve any resources or staff members of the organisation and did not receive any specific grant from funding agencies in the public,

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Since it was a review article analysing already published articles, no ethical consent was required.

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