

REVIEW ARTICLE

Broadening the avenues of complementary medicine and way forward to integrate it with evidence-based modern medicine research – A need of the hour

Anjali Pal¹, Sunil K Panigrahi², Archismita Santra³

¹Department of Community & Family Medicine, All India Institute of Medical Sciences, Raipur, Chhattisgarh

²Department of Community & Family Medicine, All India Institute of Medical Sciences, Deoghar, Jharkhand

³ESI-PGIMS & ESIC Medical College, Joka, Kolkata, West Bengal

CORRESPONDING AUTHOR

Dr. Archismita Santra, Assistant Professor, Department of Community Medicine, ESI-PGIMS & ESIC Medical College, Joka, Kolkata, West Bengal 700104

Email: archismita1@gmail.com

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ABSTRACT

This scoping review explores the evolving role of complementary and traditional medicine (TC&M) in modern healthcare systems, emphasizing the need for evidence-based practices to facilitate their integration into conventional medical research and practice. Complementary medicine refers to health practices which are not main-stream like modern medicine used along with conventional medicine, contributing to holistic health by addressing physical, mental, and social well-being. Despite their widespread use, particularly in underserved and resource-constrained settings, TC&M lacks rigorous scientific validation, hindering its acceptance and integration into mainstream healthcare. The review outlines the historical evolution of TC&M, citing key milestones such as the establishment of dedicated research institutions like the National Center for Complementary and Alternative Medicine (NCCAM) and WHO recommended strategies on Traditional Medicine. It also highlights the challenges of integrating TC&M due to the lack of research data, financial support, and standardized practices. Furthermore, the review identifies the growing need for evidence-based approaches, particularly in countries like India, where traditional systems such as AYUSH (Ayurveda, Yoga, Unani, Siddha, and Homeopathy) are widely practiced. To achieve Universal Health Coverage (UHC) and address the growing burden of non-communicable diseases, the review advocates for a shift toward integrative medicine, combining modern and complementary approaches. It stresses the importance of collaborative research, standardized training for healthcare professionals, and the development of global frameworks to evaluate TC&M practices. Ultimately, this integration could improve healthcare accessibility, reduce costs, and enhance overall health outcomes.

KEYWORDS

Complementary Medicine; Traditional Medicine; Alternative Medicine; Integrative Medicine; Universal Health Coverage

INTRODUCTION

The terms “complementary medicine” and “alternative medicine” refer to a set of practices in the health care system that may not be part of that own conventional medicine of a particular country or region and are also not fully integrated into the health care system of modern medicine which is the dominant system almost everywhere currently.

These terms are sometimes used interchangeably with traditional medicine. (1) These practices are native to the region or country where they are practised. The majority of indigenous traditional medicine has been practised at the level of primary health care. (2) Over the last few decades, science has become increasingly conservative, as an example of which we can say that the people who

have established themselves within one paradigm of medical science are almost reluctant to welcome another paradigm of medical science without having known about it. The same happens with complementary medicine if practiced without evidence-based findings. (3) WHO reflects on the multidimensionality of “Health” by defining it as “a state of complete physical, mental and social well-being and not merely an absence of disease and infirmity”(4) and this itself highlights the need of paradigm shift from just modern medicine to an integrative approach with complementary medicine practices as adjuncts to modern medicine. The objective of the current scoping review is to highlight the need for evidence-based traditional and complementary medicine practices and determine ways to integrate these practices with future modern-medicine research for attaining Universal Health Coverage.

MATERIAL & METHODS

This is a scoping review for which literature search was conducted across electronic databases like Pubmed, Google Scholar. Cross-sectional studies, retrospective observational studies, qualitative studies and reports published on TC&M practices were included in the review and findings were summarized in different domains.

RESULTS

Evidence synthesized have been divided into three domains which include evolution of traditional and complementary medicine practices, need for evidence based complementary medicine and way forward for an integrated approach for research in evidence-based Complimentary Medicine and Modern Medicine practices.

Evolution of TC&M practices:

The initial efforts to mainstream the complementary and alternative medicine practices were ushered in 1991 when US Congress passed a legislation for establishment of an office within the National Institutes of Health (NIH) to investigate and evaluate promising non-conventional medical practices. This was followed by establishment of National Centre for Complementary & Alternative Medicine in 1999. Though in common practice for centuries, the first comprehensive effort for organisation of these practices came with WHO Traditional Medicine Strategy 2002- 2005, which reviewed Traditional Medicine (TM) Practices globally, followed by a reviewed strategy from 2014-2023 and formation of global report on Traditional & Complementary Medicine by WHO. (1, 2) The most common hurdle faced by the countries for assimilating complementary medicine

practices at the level of primary health care is lack of evidence-based data (99%) and lack of financial support for research (86%). (2)

In an effort to promote the complementary medicine system, Government of India started Department of Indian System of Medicine and Homeopathy (ISM&H) in 1995 followed by establishment of Ministry of AYUSH in 2014. The objective was to upgrade traditional medicine systems i.e, AYUSH (Ayurveda, Yoga, Unani, Siddha and Homeopathy) and to mainstream AYUSH through all the tiers of health system i.e, primary, secondary and tertiary healthcare centre. (5) This has helped to improve the practice and dissemination of traditional & complementary medicine through standardisation of patient management, monitoring of adverse events and quality assurance of drugs. Even under Ayushman Bharat, the Health and Wellness Centres (HWCs) have been given separate space and provisions to include practices of Yoga for improving the overall health of people in the community as a part of comprehensive primary health care. (6) Recently WHO and Ministry of Ayush in 2023, signed “Project Collaboration Agreement” to establish standardized Complementary and Traditional medicine Systems with regard to quality of care and safety and to formulate Traditional Medicine Global Strategy 2025-2034. (7)

Also, tertiary care centres like the newly established All India Institute of Medical Sciences (AIIMS) have set up departments like Centre for Integrative Medicine Education and Research (CIMER) and joint platforms of AYUSH services with Indian Council of Medical Research called AYUSH ICMR Advanced Centre for Integrated Health Research (AI-ACIHR) for facilitating collaborative research on integrative medicine with complementary medicine as one of the components. The Ministry of Health and Family Welfare and Ministry of AYUSH have been presently working together to broaden the avenues of complementary medicine through integrative health research.

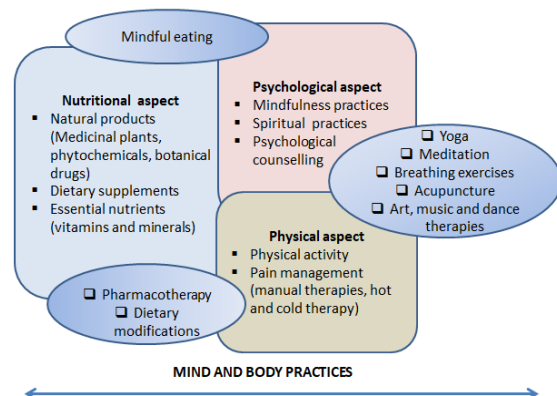
Complementary medicine also has a physical component to it which focusses on the aspects of physical activity and pain management. In tertiary care centres, the evolving departments of Physical Medicine and Rehabilitation (PMR) can be used as a perfect example of integrative medicine where apart from medical treatment, there are facilities of physiotherapies, Transcutaneous Electrical Nerve Stimulation (TENS), Interferential Therapy (IFT), Short Wave Diathermy (SDW) which are also methods of complementary medicine used for pain management.

Need for evidence-based complementary medicine:

Sustainable Development Goal (SDG-3) envisages ensuring healthy lives and promoting well-being for all at all ages by achieving universal health coverage (UHC). Traditional & Complementary Medicine can contribute significantly to the achievement of UHC in developing countries. (8) In India, it was found that almost 57.2% tribal / minor ethnic groups use Complementary and Alternative Medicine (CAM) in their lifetime as these are resource-constrained settings for modern medicine and CAM practices often act as an alternative way to modern medicine in such areas. (9) However, the need is to promote CAM practices which are evidence-based. Although 87% of the WHO member states (170) acknowledged their use of TC&M, there is no global report of their evidence-based practices. WHO global report on T&CM highlights lack of evidence-based research data and lack of financial support for research on T&CM as two most difficult issues faced by the member states. (10)

According to WHO in Global Report on Traditional & Complementary medicine (T&CM), there is a subtle difference between complementary and alternative medicine. Alternative medicine refers to the non-mainstream approach used in place of conventional medicine while complementary medicine refers to the non-mainstream approach used along with conventional medicine to improve the overall health of an individual. (10) Different components of complementary medicine have been proven to be useful in improving, not only the physical health of an individual but also the psychological health up to a great extent along with conventional medicine. (11) These systems in totality can be referred to as integrative medicine which emphasizes on multimodal interventions, which are two or more interventions such as conventional medicine along with lifestyle changes, physical rehabilitation and pain management, psychotherapy, and complementary health approaches (Figure1) in combinations in treating an individual. (12)

Figure 1: Complementary health approaches in integrative medicine



In India, there are more than 200 institutions providing formal training on Ayurvedic and Homeopathy systems of medicine and surgery. However, there are no standard guidelines on the evidence-based practices of these systems of Medicine. (13) The need for scientific research in complementary medicine therapies arises simply because these are in practice in public domain in spite of the rising popularity of modern medicine. They are still the mainstay of healthcare-seeking in many hard-to-reach areas and tribal population. (9) Health For All commitment in Alma Ata envisages an inclusive healthcare system with community participation, where the inclusion of a modern evidence based complementary medicine can prove to be essential in the following ways: (14, 15)

- I. The modern health care in most of the developing country follows a hub and spoke model, where all the tertiary level advance health care facilities are concentrated in and around big cities. (16) Provision of a quality health care to a hard-to-reach population is still a distant dream. The research and establishment of evidence-based complementary medicine and promoting integrative medicine practices will help to improve the reach of the health care system for such population.
- II. The rising health care costs coupled with worsening out of pocket expenditure resulting in catastrophic health expenditure is the new reality. (17) In this context integrative medicine practices can help to reduce the health care costs where individuals can seek healthcare nearer to their home.
- III. The rising double burden of disease and alarming increase in non-communicable diseases has limited the effectiveness of curative care while highlighting the importance of drug adherence, healthy nutrition and hygiene. (18) There is a need for system of healthcare which will focus not only on curative care but also the preventive and promotive aspects of healthcare which are very much part of complementary medicine. (19)

There is a growing concern for pseudo-research and pseudo sciences recently among the academicians. These incidents have led to scientific conservatism across the institutional ethics committees in medical schools. As the delineation among the pseudoscientific idea and a genuine research idea is very bleak, it becomes very difficult for an individual researcher to attempt research in the arena of complementary medicine because of the stigma attached. (20) The process of peer review, which is regarded as a gold standard practice among the

institutional review board/ research committees / institutional ethics committees, falters while assessing complementary medicine research due to lack of expertise and persons trained in TCM in their panel. Many a times, the interventions used in complementary medicine practices do not appear to have a scientifically proven explanation due to lack of research in the field. However, these practices are out in the public domain and therefore deserve a chance to be proven scientifically to integrate into modern medicine. (21) Finding objective and scientifically validated outcome indicators for assessment is also difficult in case of many complementary medicine practices as many times the intervention may not affect the progression of disease of interest but improves the quality of life of the patient. Also many of the trials in the field of complementary medicines were found to be flawed as these trials are very different from the typical pharmaceutical drug trial, in which strict, standardised diagnostic criteria are used with a defined and standardised treatment. Also research in complementary medicine involves extensive interaction between patient and practitioner which might confound the results and increase the placebo effect. It is difficult to blind patients and practitioners in case of trials in the area of complementary medicine as the treatments are highly specific to the needs of an individual and is more patient-centric. (22)

Complementary medicine is a wide area of interest which has concepts of well-being, psychosomaticism, consciousness and energy embedded in it. It is a complex system which sometimes does not fit into the square holes of rigorous scientific methods of modern medicine for generation of data-based evidence and therefore, there is dearth of research on complementary medicine practices because of the preconceived notion that these are only cultural dogmas and cannot have scientific basis. (23) Evidence-based modern medicine is obsessed with linear thinking and ignores the different sets of assumptions, theories and explanations of complementary medicine. As a result, much stigma has been created in and around studies related to cultural beliefs & practices. (24) In recent years India has seen an improvement in the quality of the traditional medicine practice due to integration of such practices with modern medicine especially for management of non-communicable diseases. However, the optimum research related to TC&M and its integration with modern medicine in standardized framework is still a distant vision. (25,26)

Way forward for an integrated approach for research in evidence-based Complementary Medicine and Modern Medicine practices

- I. There is an urgent need for a renewed focus on research of complementary medicine practices. These interventions cannot be assessed based on the same criteria as that used for drugs/curative medicine research, which involves a prospective framework of development. For drugs, the chemical composition and interaction with a live cell is fixed & validated first, followed by animal and human experimentation. (27)

Complementary medicine research should be seen differently from modern medicine with regard to outcome measures. Modern medicine research and practices are outcome centred whereas complementary medicine practice is person centred. It is important to note that modern medicine is almost always focussed on the disease in question. The outcome indicators reflect the progression/cessation of the disease and hence are able to monitor the effectiveness of allopathic medicine in a far better manner. On the other hand, complementary medicine interventions may not act on solely on the disease pathogenesis but their effectiveness may also be seen as an improvement of quality of life, pain tolerance, improved mental health or affecting adherence to treatments etc. (28,29)

- II. Temporality of research should not be the sole criteria for selection of a research question. There have been seminal researches in past (e.g., intervention of lime juice in scurvy, intervention of hand washing to prevent puerperal sepsis etc), where the interventions were selected when mechanism of action of the same were not known. Often research proposals on complementary medicine as a sole intervention get rejected due to lack of knowledge about the mechanism of action. For most of the complementary medicine practices, the mechanisms of the action are still under investigation and the pace of research has been slow because of lack of resources. Such research should be carried out collaboration with experts in the respective fields of modern medicine in order to follow an integrative approach. This will not only help in explaining the findings appropriately but also navigate the ethical challenges faced at times in such studies. (30) The evidence from these researches should be reported in standardized format and steps need to be taken for further development of TC&M practices by setting quality standards for both TC&M practitioners and products.

- III. The healthcare workers at the level of primary care should be adequately trained to integrate TC&M practices with modern medicine effectively such that they can be used for community-based interventional studies which have greater strength of evidence external validity. However, patient safety and ethical issues should always be considered during such studies.
- IV. Lastly there has to be a global consensus in developing a framework for researches in TC&M practices as a mainstay treatment or supportive treatment or additional treatment with an objective to exploit the benefits of complementary practices in any form or manner possible to promote health.

CONCLUSION

Complementary medicine practices are followed by a large section of the population mostly due to traditional beliefs, issues with accessibility to quality health care practices, increased out-of-pocket health expenditure in modern medicine practices and are used as modalities of preventive, promotive and also curative healthcare. However, there remains a dearth of scientifically proven evidence-based interventions and reporting and quality standards in the area of TC&M. Moreover, there is a stigma attached to TC&M practices among modern medicine practitioners regarding the safety and effectiveness of such interventions when given solely. Thus, there is a need for an integrated approach towards research in the area of TC&M along with modern medicine to address the dimensions of health comprehensively and also attain Universal Health Coverage.

AUTHORS CONTRIBUTION

All authors have contributed equally.

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DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

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