

Yoga and Integrative Healthcare: Lessons from the National Institute of Mental Health and Neurosciences (NIMHANS) in India

Abstract

Background: There is growing evidence and increasing interest for systemic integration of medicine (synergistic and evidence-based combination of different systems along with conventional biomedicine). The National Institute of Mental Health and Neurosciences (NIMHANS), an Institute of National Importance and a tertiary mental and neurological healthcare hospital situated in Bengaluru, India, has established one such integrative model. The present manuscript traces the history and describes the important steps followed in this integrative approach. **Methodology:** The NIMHANS model followed a stage-wise two-step approach: (1) First stage – *Starting with Integration of Yoga*: The process began more than a decade ago, with integrating yoga into a clinical department (rather than an exclusive research-based approach) of the institute which had relatively high clinical service load (For example, Department of Psychiatry in NIMHANS). Yoga was gradually formalized into academic and clinical activities (outpatient and inpatient services) by appointing a Yoga faculty with a medical background with an MD/PhD in Yoga. The research was primarily directed by the clinical observations of patients receiving yoga therapy. (2) Second stage: *Adding an appropriate and compatible discipline from Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy (AYUSH) system (Ayurveda in this case)*: The center for yoga gradually evolved into the Department of Integrative Medicine with the appointment of faculty from the Ayurveda stream. In this model, specialists from each discipline provide clinical inputs after simultaneous consultation with the patient through systemic integration in clinical, academic, and research domains rather than mere co-location of AYUSH services with mainstream medicine. **Conclusion:** The NIMHANS model of integration suggests the application of yoga into mainstream clinical service as the first step toward integration. Yoga should be added as a formalized clinical discipline with systemic integration. Gradually, other feasible systems of traditional medicine from AYUSH can be integrated at a later stage in a step-by-step manner based on clinical practice and evidence.

Keywords: Complementary medicine, conventional medicine, integrative medicine, traditional medicine

Introduction

Each health-care system has its strengths and weaknesses. In India, there are two streams of healthcare in government as well as private setup: (1) the conventional bio-medical health care system that follows the principles of western medicine, and (2) the traditional systems of medicine that focuses on enhancing inherent healing capacity, balancing lifestyle and improving quality of life of an individual. The different traditional systems of medicine in India (Ayurveda, Yoga, Unani, Siddha, Sow-rigpa, and Homeopathy) are categorized under an umbrella acronym “AYUSH.”^[1] Integrative medicine, as defined by the American Board of Integrative Medicine and the Consortium of Academic

Health Centres for Integrative Medicine, is the practice of medicine that reaffirms the importance of the relationship between practitioner and patient, focuses on the whole person, is informed by evidence, and makes use of all appropriate therapeutic approaches, healthcare professionals, and disciplines to achieve optimal health and healing. Integrative medicine has gained popularity in the West, and in India, it is still in the initial stages.

Need for Integration of Medicine

In the last two decades, the rising prevalence of lifestyle-related disorders and the associated morbidity and mortality have become a serious concern. This has

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made the scientific community pay more attention to a personalized and holistic approach to medical care. The burden of noncommunicable disorders such as hypertension, heart diseases, type 2 diabetes mellitus, obesity, cancer, and mental health disorders continues to grow globally despite continued research and developments in biomedicine.^[2] Considering the emerging scientific evidence and increasing demand from the patient population, the mainstream health systems world over are opening up for the process of integration with the traditional systems of medicine. Various committees were set up by the government to plan and implement integrative medicine from the 1940s onwards (Bhore committee, Chopra Committee, and Udupa Committee).^[3] The National Education Policy (2020) also recently emphasized pluralistic medical education (i.e., medical education should impart knowledge of both traditional and allopathic systems). This policy states, “Given that people exercise pluralistic choices in healthcare, our healthcare education system must be integrative, thereby all students of allopathic medical education must have a basic understanding of AYUSH, and vice versa. There shall also be a much greater emphasis on preventive healthcare and community medicine in all forms of healthcare education.^[4]” This has deep implications for medical education in India.

In this global resurgence of interest in a holistic approach, India has an advantage as it has a rich heritage of indigenous medical knowledge coupled with a strong infrastructure and skilled manpower in modern medicine. Thus, there is a need for a new inclusive and integrated health-care regime in India that should guide health policies and programs in the future. The present manuscript focuses on the National Institute of Mental Health and Neurosciences (NIMHANS) model of integration with its pros and cons, thereby paving the way for a discussion on the most appropriate model for the integration of medicine in the healthcare system of India.

Integration of Medicine: International Scenario

According to the “Traditional Medicine Strategy: 2014-2023” of the World Health Organization (WHO), the public and consumers of health care worldwide continue to include traditional medicine in their health choices. Thus, it was recommended that Member States support them in making informed decisions about their options.^[5] A change in the nomenclature of one of the major centers for scientific research in complementary and integrative health approaches under the National Institute of Health (NIH, USA), from “National Centre for Complementary and Alternative Medicine” to the “National Centre for Complementary and Integrative Health” is a reflection of this global trend towards “integration” of different health approaches.^[6]

The University of Texas MD Anderson Cancer Center (MDACC), Texas and Osher Center for Integrative Medicine at Harvard Medical School, Massachusetts are

major institutes in the US that have been providing clinical services and doing quality research work in the field of “Integrative Medicine” for over two decades. MDACC has an Integrative Medicine Center that is helping their patients deal with stress and anxiety as well as improve their sense of well-being. The center has a team that includes physicians trained in integrative oncology, acupuncturists, yoga therapists, oncology massage therapists, dieticians, music therapists, psychologists, and exercise trainers. The center has generated research evidence to support the utility of yoga therapy in oncology.^[7,8] Another example for integrative oncology is Healthcare Global Center in Bengaluru, India that has been using yoga.^[9]

The Osher Center for Integrative Medicine is a collaboration between Brigham and Women’s Hospital and Harvard Medical School. The center has a holistic view of health and emphasizes interconnections between mind and body. Their team includes consultants from conventional medicine (physicians and neurologists), traditional and other interventionists (yoga, physical therapist, chiropractitioner, traditional Chinese medicine (TCM) physicians, massage therapists, dietician, and occupational therapists). This center too has published research to support evidence-based integrative medicine including yoga in healthcare.^[10,11]

In Asia, many countries have progressed in incorporating their traditional health systems into national policy. Most of it has happened in the last 30–40 years and has accelerated in the past 10 years. Two basic policy models have been followed: (1) an integrated approach, where modern and traditional medicine are integrated through medical education and practice (for example, China, Vietnam), and (2) a parallel approach, where modern and traditional medicine are separate within the national health system (for example, India, South Korea).^[12]

The approach toward medical integration that has been followed in China deserves special attention because, in many ways, the geopolitical situations, culture, and traditional medicine practices followed in India and China are comparable. Contrary to India, where the medical education and practice of modern and traditional health systems function in parallel, or in some states of India (e.g., Maharashtra) the traditional practitioners of medicine (especially Ayurveda physicians) are trained in modern medicine and are allowed to practice modern medicine, China started the process of integration in the mid-1950s by training modern medicine physicians in traditional medicine as the first step. The evolution of Integrative medicine in China has been classified into three stages: ^[13] (1) *The training of doctors of Western medicine who learned TCM and carried out clinical evaluation (from the mid-1950s to the mid-1960s)*: In 1955, the Health Ministry in China initiated the first national program of “Doctors of Western medicine learning TCM” in Beijing. From then on, more programs of this kind were organized

all over the country, thereby training over 4000 doctors of Western medicine in TCM during this period. They assisted experienced TCM doctors in the clinic, learned from their experience, grasped the method of treatment based on TCM differentiation, and observed the therapeutic effect of TCM treatment with the diagnosis and investigations of Western medicine. This increased confidence of doctors of Western medicine with training in TCM, and promoted the cooperation between Western medicine and TCM. It also enhanced the academic status and scientific value of TCM and instigated new ideas about how to integrate TCM and Western medicine. (2) *Systematic clinical observation and experimental research (from the mid-1960s to the 1970s)*: It became more popular among doctors of Western medicine to study TCM. The first group of Western doctors who learned TCM stuck to their own specialty and carried out systematic clinical and experimental research toward integration. During this period, there were many achievements based on an integration of Western medicine and TCM; (3) *Continued deepening and innovative development of clinical study and research with respect to basic theories (from the 1980s to the present)*: In 1980, the Health Ministry organized a National Conference on TCM and its integration with Western medicine, which confirmed that the three forms of medical science and treatment—TCM, Western medicine and integrated medicine—should develop vigorously and coexist for a long time, emphasizing that the integration of Western medicine and TCM was the right way to develop medical science in China. Currently, China offers a medical degree in integrated medicine (Bachelors in Clinical Integrative Chinese and Western Medicine: <https://www.china-scholar.com/university/shanghai-university-of-traditional-chinese-medicine/bachelors-in-clinical-integrative-chinese-and-western-medicine/>) where medical professionals study Western medicine and TCM and their interaction and integration.^[13] After this degree, students specialize in a particular branch of medicine with the integration of both systems. Thus, China has followed an integrative approach through integration in medical education, research and practice.

Integration of Medicine in India: Current Scenario

In India, institutes have tried “integration” through different models. A commonly followed model is that of “co-location” of AYUSH systems in the conventional care setups or vice versa (cafeteria approach). However, some institutes, for example, the Department of Integrative Medicine (IMD) at the NIMHANS, Bengaluru, India, have adopted another model that focuses on the step-by-step process of integration and mutual cross-talk between consultants of different systems of medicine and active involvement of the patient in decision-making. This is a process of “systemic integration” for the best possible clinical output with available knowledge and resources

from different systems of medicine in a synergistic manner. Figure 1 summarizes the difference between the two models of integration.

In the present manuscript, we aim to provide the details regarding the decade long process of establishment of the “Department of Integrative Medicine” at NIMHANS, Bengaluru with an objective of understanding the process of “systemic integration” of medicine; we also discuss the pros and cons of such a model with discussions that can help in generating applicable guidelines for the policymakers of the country

Limitations of the Cafeteria Approach of Integration

Many institutes in India have adopted a model where a division of the AYUSH system of medicine is established on the premises of conventional medicine hospitals and medical colleges. Medical officers from different disciplines of AYUSH are appointed, and conventional medicine consultants refer patients to AYUSH professionals. Such an approach has certain limitations: (1) limited cross-talk between various systems of medicine, (2) cumbersome process for the patient who has to meet all consultants of different systems of medicine at different times, (3) confusion to the patient and caregivers in case of contradiction in the advice from consultants of different systems of medicine, and (4) wastage of time.

Term “AYUSH” is an Amalgamation of a Variety of Medical Disciplines

One important thing to understand is that “AYUSH” as the term does not mean a single integrated discipline that integrates all traditional systems of medicine in India. In fact, medical systems included under “AYUSH” are quite diverse and are based on different principles, for example, yoga is a nonpharmacological (“noninvasive”) discipline, Ayurveda, Siddha, and Unani use herbal and herbo-mineral combinations, and homeopathy uses medicines in energy form by diluting it. There are different regulating bodies and national institutes for each of the AYUSH disciplines. Thus, there is a misconception that integration of medicine in India means integrating “AYUSH” with mainstream medicine. *AYUSH is not a single integrated traditional healthcare system.*

The NIMHANS Model of Systemic Integration of Medicine

Introduction to NIMHANS

The NIMHANS, an Institute of National Importance, is a major tertiary mental and neurological healthcare hospital in South India under the Ministry of Health and Family Welfare, Government of India. NIMHANS has about 1100 inpatient beds and an average of 2000 patients attend outpatient services every day.

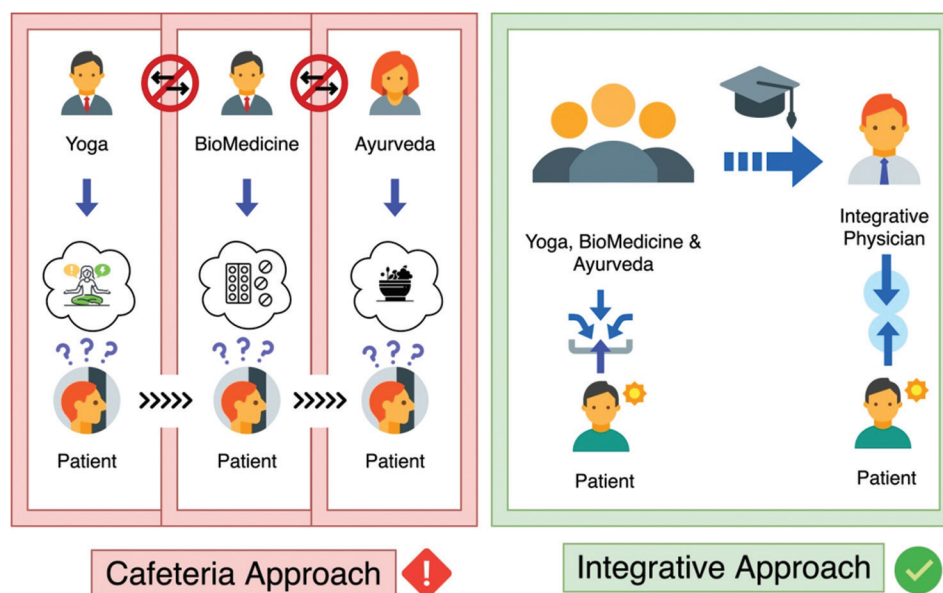


Figure 1: Difference between the two models of integration (cafeteria approach vs. integrative approach) followed in india

Why integration of yoga as the first step?

The role of lifestyle factors such as physical activity, sleep, diet, psychological stress, and social connectivity in the aggravation of noncommunicable disorders has been recognized. All yogic practices (*yamas*, *niyamas*, *asana*, *pranayama*, *pratyahara*, *dharana*, *dhyana*, and *Samadhi*) aim at aligning an individual's bio-rhythm with that of the nature, thereby bringing balance in the lifestyle factors. This can play a vital role in the prevention and management of major noncommunicable disorders. Yoga, being a nonpharmacological/noninvasive mind-body medicine approach, was considered the best option to begin the process of integration.

The United Nations recognized the importance of yoga in 2015 by nominating 21st June as the International Day of Yoga. The WHO suggested yoga as a means to improve health in its Global action plan on physical activity 2018–2030.^[14] Academicians too have shown great interest in yoga research. A PubMed search has shown 6500 research publications with 2.50 times increase over the last decade,^[15] and online searches for yoga have increased exponentially during the COVID-19 pandemic.^[16] Medical application of yoga has grown substantially, and there are now several indexed journals dedicated to Yoga research, such as the International Journal of Yoga, International journal of yoga therapy, Journal of yoga and physical therapy, and Yoga Mimamsa. Funding agencies for mainstream science research have dedicated programs to support Yoga research, such as the Science and Technology of Yoga and Meditation (SATYAM) of the Department of Science and Technology, Government of India. Dedicated yoga institutions, including universities, have been established. Premier medical colleges like AIIMS in

New Delhi, in Rishikesh, in Raipur, and NIMHANS in Bengaluru have added yoga therapy as a part of research and clinical services.

Recently the National Medical Commission has allowed an elective posting in yoga (or any AYUSH discipline) as a part of a medical internship. Proposing yoga as a curriculum in medical colleges is also under consideration. Textbooks are available on clinical uses and applications of yoga.^[10,17] Standardization of yoga protocols for different clinical conditions has been a recent focus of research.^[18-21] A substantial body of evidence is available for adding yoga as a part of medical service, both as a complementary and, in selected cases, as primary therapy, in some medical conditions.^[15] It is time that clinicians recognize the potential role of yoga professionals in health care service and work with yoga therapists to form a team. Working together, clinicians will be able to recognize the appropriate conditions for referral to yoga therapy, and therapists will be able to understand the required indications and contraindications for different yoga practices. Clinical monitoring by objective methods will also help in the best interpretation of yoga effects.

The Medical Council of India (now the National Medical Commission) has, from time to time, revised the requirements for MBBS colleges. Some examples include mandating departments or faculty in specialties such as Psychiatry, Physical Medicine and Rehabilitation, Pulmonary Medicine, Dentistry, and Emergency Medicine. With the growth of knowledge and application of medical science, this up-gradation of training facilities for undergraduate medical students is a dynamic process. It may be noted that CT and MRI scanners have been mandated for teaching hospitals of UG colleges. The

application of yoga in psychiatric disorders has been recognized by the professional body of Psychiatry, the Indian Psychiatric Society (IPS), which has formed a Task Force for Yoga and also published a manual on yoga for neuropsychiatric conditions.^[17] The World Psychiatry Association recently conducted a “Yoga in Mental Health Certificate Course” for psychiatrists, in collaboration with IPS and NIMHANS, Bengaluru. Over 100 psychiatrists from over the globe completed the course. Similarly, the Noncommunicable Disease Prevention Academy sub-section of the Indian Academy of Pediatrics conducted a “Yoga for Resilience” training program for Pediatricians in India in collaboration with NIMHANS, Bengaluru. The program was attended by 230 pediatricians across the country. Medical application of yoga in noncommunicable disorders is now routine in several hospitals and also has been included in international guidelines.^[22,23] Endocrinology, Cardiology, Neurology, Oncology, Obstetrics and Gynaecology, Paediatrics, Pulmonology, Psychiatry, Orthopedics, etc., are some departments where yoga usage is beginning to be accepted.^[10,15] In this context, establishing yoga therapy as a service unit or department in medical colleges deserves attention.

How was Yoga Integrated into the System at NIMHANS?

Initial phase

At NIMHANS, the integration of yoga into clinical practice began in the year 2007 with the establishment of centre that was funded by the Morarji Desai National Institute of Yoga (an Institute under the Ministry of AYUSH, Government of India).

Which department to choose for the initial phase of integration?

Experience at NIMHANS revealed that integrating clinical yoga services into mainstream clinical departments can be one of the ways to begin the integration (rather than starting it in an exclusive research mode). In the experience of the authors, the clinical department of the institute with a high clinical load (Psychiatry in the case of NIMHANS) could be chosen. An interested faculty from Psychiatry with a track record and experience in yoga was appointed as the In-charge Head of the clinical yoga services. Patients were referred for yoga based on the biomedicine physicians' clinical understanding and current evidence. At the Yoga Centre, patients were screened by a doctor for medical conditions to rule out potential interactions/ contra-indications, and were then seen by a qualified yoga professional who chose specific yoga modules/practices as per the diagnosis. A trained yoga therapist then taught the yoga practices at a specified time every day (separate group sessions for different neuropsychiatric conditions).

Initially, services started only based on referrals from the departments of psychiatry, neurology, and neurosurgery. For a few years, the referrals were limited (a few patients per day) to patients with nonspecific complaints, those who asked for yoga themselves, or those who had mild anxiety or depression and were unwilling to take medications. In recent years, more patients with established diagnoses have been referred.

Absorption into NIMHANS system– formalization of yoga into academic and clinical activities

Later, as this service grew, the center was absorbed as a part of the Institute's core services in 2014 under the department of Psychiatry and was called the NIMHANS Integrated Centre for Yoga. Inpatients and outpatients at NIMHANS were still treated at the yoga center only through referral. Patients from outpatient departments would come in the morning, and patients from the inpatient department would come in the afternoon. Patients referred by physicians from outside the institution were also seen. A yoga faculty was appointed (MBBS + MD in Yoga) within the yoga center and interested MD/PhD (psychiatry) resident doctors were guided to do their thesis in the field of psychiatry and yoga (yoga faculty served as the co-guide). Along with the yoga faculty, yoga researchers who have MSc/PhD yoga were appointed as yoga therapists and yoga scientific officers to deliver clinical services under the supervision of the yoga faculty after receiving orientation to psychiatric clinical practice. The center designed, validated, and feasibility-tested specific modules of yoga for different neuropsychiatric disorders and later also conducted clinical trials as well as mechanistic studies in these disorders. This work has been recognized internationally.^[17,24]

Integration of Ayurveda and evolution into the Department of Integrative Medicine

An Advanced Center for Ayurveda in Mental Health and Neurosciences (a unit of the Central Council for Research in Ayurvedic Sciences) had been established at NIMHANS as early as 1959 based on the Udupa Committee report (1958).^[3] This was based on the co-location model and funded by the AYUSH division/department/ministry. A moderate amount of research had been conducted by this center, but the integration of Ayurveda into the regular clinical and teaching services of NIMHANS had not been possible.

In 2019, NIMHANS established a separate clinical department, the Department of Integrative Medicine (IMD), at NIMHANS. This department integrated Biomedicine, Yoga and Ayurveda with regular faculty and scientists from all three disciplines. The IMD runs OPD services (located in OPD block of institute) 3 days a week and has a 30-bedded inpatient facility. The department offers *inclusive healthcare* where specialists from biomedicine, yoga, and Ayurveda examine the patient simultaneously in the OPD

and during the IPD rounds. Professors from Ayurveda, Yoga, or Psychiatry rotate as heads of this department. The junior residents and senior residents from the streams of Psychiatry, Ayurveda, and Yoga consult the cases with all three consultants at the same time and hence are able to learn integrative clinical diagnostic and management strategies. The vision is to generate human resource that has integrative skills. The department has also started postdoctoral fellowships in Integrative Psychiatry (for MD Psychiatry degree holders) and a fellowship in Integrative Mental Health (for those with MD Ayurveda (Manasa Roga) or MD (Yoga).

Pros and Cons of the NIMHANS Model

It is important to keep in mind that NIMHANS is a specialized tertiary care hospital that focuses on the domains of mental health and neurosciences only. Extrapolating such a model to multi-specialty hospitals that have all major departments of medicine and surgery may have its own challenges. For e.g., in institutes with a general hospital, where the patient load on mainstream clinical departments is quite high, and thus, in such a situation, it becomes difficult to open yoga services to all the patients who are receiving clinical services from the department due to logistic issues. It is also a challenge to decide which kind of medical conditions should be focused first. In the case of NIMHANS, it was easier because the clinical department with “maximum clinical load” was psychiatry, where yoga naturally finds a clinical role, and there is demand from patients. However in other clinical departments, for example, in the departments of cardiology, pulmonology, nephrology, oncology or obstetrics, and gynecology the integration of yoga may have its own challenges. The indications and contra-indications to various yogic practices in different medical conditions also may be complex. This needs deeper exploration based on current evidence.

On the other hand, if a nonclinical department is chosen to begin the integration with yoga and generating evidence is considered as the first step before clinical integration, then, though easier to implement in the beginning, the research will not have much needed pragmatic clinical feedback that can be vital in shaping the directions of yoga research in that discipline.

Need for Starting Yoga Departments in Medical Colleges in India

Given the above, it is necessary that the department of yoga is made a requirement in all medical colleges across different “pathies” in India. That includes medical colleges that offer MBBS, BAMS, BUMS, BNYS, BSMS, and BHMS courses. Yoga is noninvasive and accordingly is not expected to have any drug interactions.^[25] Integration of yoga, therefore, with other medical systems should pose no challenge. It should therefore be actively encouraged.

If there are some procedures used in any of these medical systems where the role of yoga is seen as a potential confounder, the mutual discussion could help find a safe way out in such instances. The department of yoga could start as a referral department. When patients or clients reach out to yoga directly, a mechanism of screening by a medical person should be established to rule out potential interactions, contraindications, need for medical investigations, or even remedial medical interventions. Such collaborative patient care is conducive to the promotion of well-being as well as encourages the scientific growth of yoga. The Integrated Centre for Yoga (IMD) at NIMHANS is an example of this approach.

Challenges

To date, a national body that accredits yoga professionals is lacking. This is essential to define the cadre and recruitment rules for yoga departments. An MD program in Yoga Therapy that has been introduced by one of the universities in India (Swami Vivekananda Yoga Anusandhana Samsthana, S-VYASA University, Bengaluru) deserves examination. MD (Yoga Therapy) offered by S-VYASA is open to medical graduates of all disciplines of medicine (BNYS, MBBS, BAMS, BSMS, BUMS, BHMS). This must be fine-tuned and considered as a formal syllabus for producing MD in yoga in the yoga department of all medical colleges in the country. This allows any doctor MBBS, BAMS, etc., to get an MD degree in Yoga therapy. Based on the UG degree, this doctor, after completing MD yoga therapy, could be employed in the corresponding medical institution, for example, a person with MBBS and MD Yoga can be appointed in the yoga departments of the modern medical institutions, whereas the one with BAMS and MD Yoga can be appointed as faculty in the yoga department in the Ayurvedic medical college, and so on. The MD degree may be accredited by any of the commissions such as NMC, AYUSH, etc., Alternatively, a separate “Yoga Commission” may be created to examine different educational or professional programs. Among these programs could be MD yoga therapy as a PG course. The yoga medical faculty in the department will have registration in the corresponding medical council (based on UG degree). Such faculty will be aware of mainstream treatment modalities, including their side effects and possible interactions, and will be in a better position to communicate with other mainstream departments of the institute. It is possible that medical doctors specializing in yoga may not always be available. Till such time, the yoga department may also consider availing the services of yoga faculty who have extensive training in clinical applications. There should be a provision for appointing yoga researchers (MSc/PhD Yoga) in the department by orienting them to medical systems of specific disciplines. One such initiative has been attempted in the Indian Institutes of Technology by training PhDs in the clinical

domains. The headship in these departments may be rotated as per the administrative rules of institutes of national importance such as NIMHANS.

Future Directions

For the benefit of patients and to impart holistic treatment approaches, yoga therapy must become a formal department in all medical institutions across different “pathies.” There is a need to accredit yoga therapy as an MD degree. One of the professional bodies or, even better, each of the medical commissions corresponding to the UG degree can recognize MD yoga therapy. This will help in developing an appropriate cadre and recruitment rules as well as the subsequent career path in yoga therapy.

Conclusion

The NIMHANS model of integration suggests that the application of yoga in mainstream clinical service can be successfully carried out as the first step toward integrative medical care. Yoga may be added as a formalized clinical discipline with systemic integration. Gradually, other compatible systems of traditional medicine can be integrated in a step-by-step manner based on clinical practice and evidence. There is also a need for a national accreditation body for medical yoga courses.

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Conflicts of interest

Authors declare no conflicts of interest, Dr Gangadhar has given his views in his personal capacity and they may not necessarily reflect views of National Medical Commission.

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