

# What could 'integrative' medicine mean? Social science perspectives on contemporary Ayurveda

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## ABSTRACT

The paper attempts to critically engage with the idea of integrative medicine as a marker of pharmaceuticalization of Ayurveda in the recent decades. It examines what it means to say 'integrative' medicine using the metaphor of language from philosophy of science. Drawing upon fieldwork with Ayurveda practitioners, the paper also discusses the ramifications of integrative medicine in the current scenario in which there is no organizational parity between Ayurveda and biomedicine. The paper calls for a focus on Ayurveda for public health rather than the global health market.

**Key words:** Ayurveda, Asian medicine, integrative medicine, medical pluralism

## INTRODUCTION

Integration of Ayurveda with biomedicine has been a contentious issue since the colonial period when biomedicine was first introduced in the Indian subcontinent. This paper argues that the idea of 'integrative' medicine is problematic and spells out what the problems are. This however, is not a call for 'pure' Ayurveda or an attempt to resist change, but it is about the direction of change. The notion of 'integrative' medicine has come up several times earlier and is not new; besides there is already considerable integration of biomedicine into Ayurveda today. Accepting that ayurvedic knowledge should be strengthened by new approaches and improved diagnostic and curative ability, this paper advocates selective assimilation under medical pluralism rather than integrative medicine. In the following sections we address some of the issues in this regard.

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## FROM MEDICAL PLURALISM TO INTEGRATIVE MEDICINE

The transformation of Ayurveda in the past two centuries may be understood in terms of three phases: one spearheaded by vaidyas till the 1950s, the second ushered by the government of independent India, and lately, the third phase led by biotech pharmaceuticals and commercial lobbies in the global health care industry.

The early interventions in Ayurveda in the 19<sup>th</sup> century were largely institutional and were brought about by the vaidya community in order to strengthen their system against the colonial policy of promoting western medicine.<sup>[1,2]</sup> Ayurvedic education moved from guru–shishya relation to the college as an institution; medicinal production shifted from the household of the vaidya to bulk production. These changes were thought to be necessary for Ayurveda to survive along with biomedicine. Historical evidence points to the fact that during the cholera epidemic of early 20<sup>th</sup> century, Ayurveda vaidyas and hakims successfully treated patients in different regions without forced mass quarantine.<sup>[3,4]</sup> There was keen interest on studying how Ayurveda could address contemporary health problems and compete with allopathy on its own terms, rather than adopt biomedical terminologies and methods of verification.

In the 1960s and 1970s in post independent India, the issue of integration was raised repeatedly when curricular change in traditional medicine was attempted. There was a huge demand for biomedical subjects in Ayurveda courses from middle-class, urban students who were now entering Ayurveda<sup>[5]</sup>. Familiarity with anatomy, nosology, etiology

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therapy, and biomedical pharmacology was necessary for Ayurveda to be able to coexist with biomedicine in the public institutions and the extent of biomedical subjects in ayurvedic courses varied from 50% to 75% in the regional colleges. A large section of the urban entrants to Ayurveda degree courses saw it as a backdoor entry into the modern medical profession<sup>[5]</sup>. Practitioners of traditional medicine were prescribing biomedical drugs, but not openly. Research in government Ayurveda institutions almost exclusively followed the laboratory protocols. Despite these changes, the integrity of Ayurveda practiced by traditional vaidyas and hakims was not seriously threatened as testified by anthropological studies till the 1990s.<sup>[6-12]</sup> In fact, in the private sector, people preferred vaidyas with a family tradition in medicine rather than a degree holder without the backing of tradition; the numbers of non institutional ISM practitioners was growing till the 1990s after which it is trailing.<sup>[13]</sup> The third phase in the trajectory of modern Ayurveda, however, is a cause for worry because of developments that seem to dismantle Ayurveda systemically.

In the past few decades there is a boom in the number of Ayurveda colleges such that in the 20-year period from 1980 to 2000, 186 private Ayurveda colleges have mushroomed, producing about 20,000 graduates in total per year (only 10,000 less than biomedicine). This spurt in numbers, however, is not necessarily the outcome of strengthening of ayurvedic medicine, rather of the growth in the employment potential of Ayurveda graduates in delivering allopathic services on ad hoc appointments in the private and government sector<sup>[14]</sup>. It is found that 20% of BAMS graduates take hospital jobs, 10% go into private practice of Ayurveda, and 70% practice allopathic medicine.<sup>[14]</sup> A grey area in which there is no specification of the extent to which ayurvedic practitioners may practice biomedicine has been created; what is worse is that this is endorsed by the state governments<sup>[15]</sup>, which are desperate to get some medical professionals to work in postings that biomedical professionals avoid. The history of biomedicine in the nineteenth century, shows that there were foundational debates between professionals supporting social medicine which stressed on improvements in nutrition, housing and sanitation as crucial health status and those favoring clinical medicine, or, which highlighted the importance of drugs and surgical procedures<sup>[16]</sup>. In 18<sup>th</sup> and 19<sup>th</sup> century India, vaidas and hakims engaged in fierce debates with allopaths and administrators on public health issues and this was a crucial reason for the survival of indigenous systems of medicine. But there is no debate in the ISM sector today; Ayurveda graduates are uncritically inducted into the existing system. Under these circumstances, the formal acceptance of integrative approach by ayurvedist is not a happy development.

The call for integrative medicine in the past decade is a response to the process of globalization in which the changes are neither commanded by the vaidyas nor by the government, but by the global market forces for herbal products in which the ayurvedic professionals and the government<sup>[17]</sup> will play a compliant role.<sup>[14-18]</sup> There is a huge growth in the export of ayurvedic medicines in the past 10 years and this is expected to grow with the burgeoning demand for herbal products worldwide.<sup>[19]</sup> Subsidies for the export of raw herbs, digitalization of plant resources, standardization of ayurvedic formulas, and integrative research on herbal ingredients are all measures meant to enhance the 'safety' of herbal drugs for the western consumers; they have little to do with Indian consumers for whom accessibility and availability is the criterion. The adverse impact of integrative pharmaceutical research and standardization is that it involves dismantling of ayurvedic formulas into few active ingredients that will be fashioned into herbal products and nutraceuticals.<sup>[18]</sup> They become hugely profitable when sold as "Over-the-counter" products.<sup>[19]</sup> There is hence a gradual appropriation of classical formulations to create general natural products for the health market and pharmaceutical research of this kind does not contribute to Ayurveda as a system of medicine. This is because in integrative research its concepts, terminology, theories, formulas, and diagnostic techniques are all transformed <sup>[20,21]</sup>. Such a conflation of objects of enquiry and methods of verification under integrative medicine without strengthening of ayurvedic education and protocols could lead to the erosion of Ayurveda.

### INTEGRATION WITHOUT FOUNDATION?

In philosophy of science, a knowledge system is characterized by 4 core features: Objects of enquiry, norms of verification, conceptual architecture, and strategies of delineating its themes of study. Objects of enquiry are entities or group of elements that a knowledge system defines singularly according to specified rules and analyzes them consistently within a commonly accepted conceptual framework. The doshas, dhatus, and malas are thus some of the objects of analysis in the ayurvedic approach to the body. Norms of verification refer to the accepted manner of making statements and substantiating them, either experimentally or theoretically. In the case of clinical medicine, observation and interrogation of the patient, conducting tests and deciphering them, recording the results and taking decisions, all constitute the basis of statements made. Conceptual architecture refers to the consistent use of well-defined concepts within a community of experts. The articulation of stable rules by which certain themes of study or research questions are included within the body of knowledge is the fourth characteristic. All the 4 features

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have to be mutually consistent and governed by a standard body of rules for all statements made, for them to be regarded as a valid body of knowledge. Lack of consistency in the objects analyzed, incompatible modes of verification and prevalence of multiple conceptual frameworks are markers of incoherence and lack of rigor. Such discourses may even be termed as pseudosciences because the criterion of science does not lie in Randomized Controlled Trials (RCTs) per se, but the prevalence of internally consistent and rigorous rules of defining objects of study and methods of studying them among a community of experts.

If we examine the situation of contemporary Ayurveda in terms of these features, we find that there is no disciplinary boundary or stability in its rules of verification. The objects of ayurvedic research are not always the doshas, dhatus, and mala, but biomedical disease categories. There is no doubt that the training in biomedical sciences as part of their curriculum enables ayurvedic physicians to see measurable parameters of the doshas or of the physiology of drug action. A physician could learn another system of medicine and it is like learning more than one language; in the sense that one could be bilingual.<sup>[22]</sup> For instance, the pharmacologist researcher Dahanukar commissioned a study to understand the concept of *rasayana*. Her question was, “how was it possible for one plant, with its usual array of photochemicals, to produce such a variety of effects like delaying ageing, improving mental functions and giving freedom from several diseases including those caused by infection?”<sup>[23]</sup> So she carried out a study to clarify the principles behind the multiple actions of a single herb in *rasayana* therapy; the herbal preparations based on the texts were examined on animal and human subjects under controlled laboratory conditions. The procedure and results were noted in terms of both ayurvedic and biomedical parameters. The report reads like this: “The outcome of these experiments was that we could demonstrate that *rasayanas* increase nonspecific resistance against stressors by activating RES and the other components of the immune system nonspecifically; we could also document that those *rasayanas* which have *madhura vipaka* were immunostimulants, those having *katu vipaka* were not”.<sup>[23]</sup> Besides the resultant drug preparation, was found to be effective in reducing the mortality rates and the incidence of infections for tuberculosis and obstructive jaundice during clinical evaluation. In Dahanukar’s view, this kind of bilingualism and the use of controlled trials endorse and explain what is already stated in classical ayurvedic texts.

Similar observations have been made in the case of traditional Chinese medicine (TCM) as well. “For example, some chronic bronchitis, bronchial asthma, hydronephrosis, recessive Addison’s disease patients may all be diagnosed as experiencing ‘insufficiency of the kidney’.

Kidney insufficiency can be treated utilizing the principle of nourishing the kidney while warming up Yang, often with very satisfactory results. Laboratory examinations have shown that these patients diagnosed so differently in western medicine reveal a common defect, that is, low excretion of 17-hydroxi-corticosteroid, indicating hypofunction of the adrenal cortex. However, the treatment principle mentioned above, when administered, returns adrenal function to a normal level and cures these patients of their various diseases with one common principle. These laboratory findings approximately explain the mechanism of a traditional Chinese medical principle”.<sup>[24]</sup> Studies like this find that laboratory trials corroborate the statements given in classical medical texts. It is hence said that the application of biomedical norms of verification and concepts as a reference point improves the understanding of the TCM practitioner.

But while this kind of bilingualism could be one of the several ways of learning at the level of individual researcher, it certainly cannot be the approach of an entire system of medicine. Invoking Kuhn’s model of language again, it is possible for someone to learn and speak more than one language, like the ayurvedic professional today who speaks ayurvedic and biochemical language. Grounded in one language, it is also possible to translate, compare and assimilate from another into one’s own. For instance, in the first medical colleges of 19<sup>th</sup> century, allopathy was taught through vernacular medium and medical textbooks in some regional languages were written. Similarly, regional and Sanskritic medical texts have been translated to English to facilitate collegiate education in Ayurveda. But it is not possible to ‘integrate’ them. There is common/neutral language into which two theories of the body, ayurvedic and biomedical, conceived of as “sets of sentences” may be translated without major loss to one. That is, while it may be possible to assimilate requisite inputs from another system as and when needed, the idea of “integrative medicine” is an anomaly, especially when the 4 core features of Ayurveda and biomedicine are radically different. A system of medicine has to have its own disciplinary boundaries. But “integrative” medicine creates a condition in which Ayurveda has to live by translation alone; we know that a language cannot sustain only on translation. Further integrative medicine involves not mere translation but interpretation and establishing correspondences between two sets of categories, something that Dahanukar’s characterization above does not explain. Adams and Fei-Fei Li’s study<sup>[20]</sup> of integrative medicine at Lhasa’s traditional Tibetan Medical Hospital, Mentsikhang, shows the confusion in matching definitions of disease and determining treatment outcomes in integrative practice. For instance, in a study of the efficacy of Tibetan medicine on hepatitis,

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Tibetan treatment was judged inefficacious even though patients reported 83%–100% relief from all the eight clinical symptoms designated for evaluation, as well as nonrecurrence of symptoms in a 5-month follow-up study. This was because the definition of hepatitis in terms of viral load adopted by the biomedical experts did not match with the Tibetan medical definition of the liver disorder. The authors found several such mismatches in concept and diagnosis in which biomedical decision was accepted even though patients reported improvement. As their confidence in their own system dropped with such test results, Tibetan doctors increasingly abandoned their holistic concepts in favor of narrow biomedical tests.

The hallmark of integrative medicine is a constant reclassification of Ayurvedic disease terminologies in terms of biomedical disease terminology and translation of its pharmacological action in biochemical language. When this is incorporated into a larger drug research by an interdisciplinary team, the input from Ayurveda becomes prescientific data. It then gets validated in the laboratory and transformed into biochemical knowledge of drug action expressed and reported in scientific terminology.<sup>[vi]</sup> Will this lead to the incremental growth of ayurvedic knowledge or merely lead to its pharmaceuticalization? If research findings in Ayurveda are always discussed in biochemical and anatomical terminology, how far would such research enhance the understanding of doshas and dhatus?

Ayurveda practitioners have to speak the language of biomedicine in order to enter into a dialogue with the existing system. The BAMS training of the Ayurveda practitioner facilitates the dialogue, but in an interdisciplinary team, the Ayurveda professional has little control over the end result of the dialog. Kim<sup>[25]</sup> also notes how the scientific community in an international conference did not even acknowledge the concepts and methods of Korean medicine even when translated into scientific language. In such an asymmetrical relationship, prolonged subjection of Ayurveda to the language of the laboratory would erode its integrity, as testified by the experience of other Asian systems of medicine.<sup>[20,26]</sup>

There are many more crucial unsettled questions about integrative medical research: Whether separating composite drug formulations and multimodal treatments of Ayurveda into monomodal protocols for the sake of controlled trials is the right thing to do and whether animal experiment would be a valid epistemological method according to Ayurveda. Uncritical import of the RCTs into traditional medicines has been found to eliminate their nuanced therapeutic approach,<sup>[15]</sup> reduce them to few internal medicines while separating external treatments

and hijacking them to the spa. The issues raised here are therefore:

Cross-system learning could be wholesome to the ayurvedic professional only when there is a strong foundation in ayurvedic theory and pharmacological principles. When ayurvedic diagnosis and treatment protocols have not been evolved for several disease conditions, it would not help to talk about integrative protocols.

Currently, the BAMS and MD curriculum includes 50%–70% biomedical subjects and studies show that at all India level 70% of Ayurveda practitioners prescribe allopathic medicines (it is 80% in Punjab and Mysore and 12% in Kerala.<sup>[27]</sup> Other recent studies<sup>[vii]</sup> also corroborate the fact that a sizeable section of college-educated Ayurveda doctors do deliver biomedical treatment.<sup>[28,29]</sup> The term “integrative” medicine may legitimize such crossover and reduce Ayurveda to a mere degree devoid of knowledge base.

In the absence of professional associations of Ayurveda to harness effective clinical practices and innovations and to regulate entry of nonayurvedic professionals into ayurvedic research, there is no closure around this medical system. The history of biomedicine shows that it gained legitimacy through the emergence of strong professional associations much before its scientific achievements and the new drug discoveries.<sup>[30]</sup> The concept of one pivotal system around which integrative medicine will work<sup>[31]</sup> is a good idea, but may not be practical in the organizational setup of scientific research today, when the pivot is not strong. The demand for transdisciplinary protocols in the absence of disciplinary protocols for Ayurveda, therefore, is a serious problem.

### PROBLEMS OF LABORATORY-CENTERED MEDICINE VERSUS LIFE-CENTERED MEDICINE

One of the key reasons for the worldwide shift to complementary and alternative medicine (CAM) in the past few decades has been due to specific problems of biomedicine emerging from laboratory-tested drugs and procedures. It is, therefore, unwise to import the hi-tech and enormously expensive technologies of biomedicine into Ayurveda when they have not helped biomedicine to offer effective and less-expensive remedies for chronic ailments.

Archibald Cochrane in his work, ‘Effectiveness and Efficiency: Random Reflections on Health Services’,<sup>[32]</sup> first suggested the term “evidence-based medicine” for biomedicine because he found that the benefits

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of many sophisticated and expensive procedures of biomedicine had not been adequately evaluated. The idea of evidence-based medicine, then was accepting biomedical treatment protocols only if evidence of their effectiveness in real life is proven. This shows that efficacy of a drug/procedure in a controlled trial is no guarantee of its effectiveness under live conditions. This is testified by the huge menace of *clinical iatrogenesis*, which refers to the fatal damages to the patient caused by the so-called sound and laboratory-tested medical interventions.<sup>[33]</sup>

Based on review and close reading of medical peer-review journals and government health statistics, Null *et al.*<sup>[34]</sup> show that the number of people having in-hospital, adverse drug reactions (ADR) to prescribed medicine in the US is 2.2 million per year. The most stunning statistic, however, is that the total number of deaths caused by conventional biomedicine is 783,936 per year, far higher than the number of deaths attributable to heart disease in 2001 that was 699,697, and cancer that was 553,251.

In India, neither do we have any statistics of damages caused by medicine, nor a procedure to record damages due to medical errors and iatrogenic effects. The point here is not to attribute malafide intention to medical experts, rather to foreground the problems of a medical system whose therapeutics is based *only* on verification under controlled laboratory conditions but causing damages in real life. Further most of these problems have been identified and discussed by a section of medical professionals themselves.

Unlike Homeopathy and Ayurveda, biomedicine does not have a theory of individualized body constitution that helps understand the effect of medication. The suffering on account of medication/treatment is therefore attributed to individual "variation" and transferred to the patient. Legal rights to sue for damages are available to an aggrieved patient only after the damage has occurred. The separation of medical functions among pharmaceuticals, hospitals, and research institutes may have produced large amount of expert knowledge, but as pointed out in earlier, excessive expert knowledge has had iatrogenic effects. This is because the patient's welfare is often compromised in the process by which knowledge is transferred from the laboratory to real life. Controlled trials themselves depend on interpretation of evidence based on previously confirmed medical beliefs and contradictory evidence may be bypassed by finding fault with the experimental protocol.<sup>[35]</sup> Controlled trials have little to do with the patients' experience of the drug in real life unless large number of patients are affected in one location.<sup>[36]</sup> Hence RCT is not necessarily the

only and the best method for validation of therapeutic efficacy.

### LABORATORY SCIENCES AND BIOCAPITAL

The laboratory indeed was a progressive factor in the growth of modern science in the 17th and 18th centuries, but in the 21st century it is embedded in sponsored research by huge pharmaceutical industries that have all the stakes in medicine today. Today the doctor-patient dyad is but a small fragment in the fag end of this flow of capital and technology both in pharmaceutical research and corporatized health care in the hospital.<sup>[37]</sup>

Several professional societies of biomedics and socially conscious scientists themselves are worried about increasing commercialization of the profession in which they are reduced to service providers in a field commanded by big firms. Within biomedicine, there is a call for return to clinical methods that are not based on expensive diagnostic technologies, to observe and relate to the patient and to make rational prescriptions. There are movements to strengthen the rights of lay people against the domination of biomedical experts and the medicalization of health.<sup>[38]</sup>

When biomedicine is plagued by the ills of capital intensive laboratory trials, the call for integrative medicine and the consequent privileging of laboratory research is likely to subject Ayurveda to the same problems that haunt biomedicine. Already studies show that Ayurveda doctors spend only as much or, lesser time with patients than allopaths.<sup>[27]</sup> The separation of the expertise of traditional vaidyas from college education in Ayurveda and elimination of simple, skill-based techniques<sup>[viii]</sup> is already making it a costly option without its own benefits of holism or humanism. Herbalists and alternative therapists worldwide have begun to resist the imposition biomedical standards. Alternative paradigms in which a clinical database may be established by herbalists through clinical audit of herbal therapies have been suggested.<sup>[18]</sup>

This does not mean ayurvedic remedies should not be verified under laboratory conditions or that it should not use modern tools, but that this should be subordinate to the distinct clinical methods of Ayurveda and the protection of the doctor-patient relationship. It is highly doubtful if this will be possible under a regime of integrative medicine in which ayurvedic professionals will be co-opted into the bandwagon of hi-tech medicine.

Some of the strengths of Ayurveda come from its broad-based knowledge, which has an expert component in skill-based diagnosis and complicated therapeutic procedures as

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well as a nonexpert component. The rich knowledge base of health practices, principles of diet and eating habits, care for infants, lifestyle regulation, and adaptation to seasonal patterns<sup>[12, 39]</sup> constitutes the nonexpert medical knowledge. The symbiotic relationship between the two components has led to accumulation of the huge corpus of medical knowledge enshrined in the vernacular medical compendiums in various regions of the subcontinent. Besides the medical lore at the household level has been a crucial resource for prevention and early treatment of diseases. The fading of this kind of non-expert knowledge at the household level renders families and parents ignorant of the physiological effects of food substances and work patterns leading to dependence on chemical and synthetic drugs for minor ailments. A structural and biochemical approach to food substances such as the one followed by the modern science of nutrition cannot tell us for instance, why citrus fruit juices and curds are not wholesome and nutritious for every one; besides it requires access to a laboratory technology and an expert to examine and tell us the biochemical constituents of substances. Ayurveda provides the pancabhautic parameters by which even an informed lay person could study the effects of food stuffs on one's own metabolism without any technical apparatus.<sup>[40]</sup> The Foundation for the revitalization of local health traditions (FRLHT) has been the one and only institution that has single-handedly addressed the relevance of local health traditions and devoted to the cause of strengthening them. The protocols for the documentation of local health traditions developed by FRLHT have been enormously important not only to Ayurveda but to indigenous systems across the world. The next step would be to link sound local health tradition to the AYUSH facilities and to achieve capacity build up to address dire public health challenges facing the regions. Integrative medicine will gradually eliminate the crucial role of non-expert, folk medical knowledge in Ayurveda, which has been an important layer of health security.

### **PRIORITIES: PUBLIC HEALTH OR GLOBAL CARE MARKET?**

In the past 5 decades, the government research institutes for AYUSH systems have always carried out integrative research. This integrative research has only contributed to the herbal drug industry that caters to the global demand for herbal products and food supplements<sup>[6]</sup>. More and more research into single and two herbal ingredients mined from classical texts adds to the new pharmacopeic inventories for herbal products with global reach for high-end customers. Many of these herbal ingredients are used for wellbeing therapies, not for curative purpose. A large majority of demand for complementary medicine and herbal therapies in the west is from upper middle-class

women with more leisure and resources.<sup>[14, 41]</sup> In India, on the other hand, AYUSH services are used by lower middle-class people and the poor for major diseases and for obstetric care. The nationwide survey of National Rural Health Mission<sup>[42]</sup> on the utilization of government AYUSH institutions indicates high attendance in standalone facilities and in well-established co-located facilities. The point is not that knowledge should not be diffused but is one of priorities in resource allocation. A survey of ayurvedic institutions in Delhi<sup>[8]</sup> also shows that rickshaw pullers and other working class people turn to Ayurveda for several chronic ailments, such as skin diseases, gastrointestinal disorders, liver diseases, arthritis, gynecological problems, and some acute ailments. The main problem in this situation is the dearth in the supply of medicines to AYUSH hospitals and dispensaries. In addition, there are no ayurvedic protocols for pre- and neonatal care and for conducting deliveries in the Ayurveda maternity wards in government institutions.

The case of Chinese medicine as often cited as a model for integration. Two points deserve mention here. First, although the idea of integration was always there, in socialist China, traditional medicine was promoted and strengthened in the public health system since 1950s before its globalization. The budgetary allocation for TCM and allopathy was almost equal: There were 24,12,362 hospital beds for TCM by 1984,<sup>[24]</sup> while the budget for Ayurveda in India as late as 2008 is so tiny with bed strength of 64,770<sup>[6]</sup>. The modernization of Chinese medicine was coterminous with the evolution of its own diagnostic and therapeutic protocols alongside familiarity with biomedicine. It was possible for government institutions to develop innovative, less expensive therapeutic techniques drawing on classical principles in the 1950s, introduce them in the public health system and propagate them over the decades.<sup>[43,44]</sup>

Second, even after such a strong foundation, integrative approach in TCM only seems to have made it more costly and commodified since 1991, pushing it from mainstream to marginal position in the formal sector, although the use of home remedies and dietary regimens continue in rural China.<sup>[45]</sup> As for its global presence, specific aspects of Chinese medicine have been picked up and grafted onto existing systems, such as the use of acupuncture anesthesia in biomedical surgeries in France and the use of certain Chinese herbs in herbal medicine and herbal teas in naturopathy. TCM is also introduced as alternative medicine in the government health services in some European countries. So integrative approach even with good foundation, does not necessarily enhance the curative ability of traditional medicine at home or its capacity to address current epidemics, such as bird flu, rather allows the disaggregation and dissipation of the system of medicine

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and its selective assimilation into other existing therapeutic methods.

As mentioned earlier, there are several leads in the work of vaidyas and hakims of the 19th and early 20th century as to how to develop Ayurveda without integrative approach. The need of the hour is not integration with biomedicine, but integration of the knowledge, skills, and techniques within ISMs in different regions of the Indian subcontinent.

### FUTURE DIRECTIONS: SOME SUGGESTIONS

The emphasis of efforts in Ayurveda should therefore be

- Separate entrance test for BAMS course instead of recruiting from the CET pool those who wanted to enter MBBS but could not because of poor scores; There is a need to create ayurvedic professionals who seek to enter Ayurveda for its own value and respect their own system of medicine.
- Standardizing ayurvedic diagnostic and treatment protocols by in situ studies and documentation of clinical practices.
- Creating centers of excellence for *naadi pariksha*, *marma chikitsa*, *visha chikitsa* treatment of paralysis, medicinal preparation, and other special methods of Ayurveda
- Including these protocols to strengthen the ayurvedic component in BAMS and MD degree courses. Linking skilled traditional vaidyas and Hakims with the college education system
- Creating regional ayurvedic protocols for the public health system, including prenatal and postnatal care and maternal health
- Sustainable manufacture and supply of quality drugs for public health
- Greater research into new food stuffs in the market, contemporary dietary habits and lifestyle and their effect of body constitution and dosha dhatu satmya as measured in various regions, rather than single-drug research for export
- Nation level forum for serious debate and discussion among ayurvedic professionals about the role of RCTs and Multinationals in Ayurveda and for the creation of pan Indian protocols for strengthening professional boundaries
- Regulatory mechanism to specify to what extent can ayurvedic graduates perform biomedical interventions and whether biochemists/biomedical specialists are competent to carry out research on Ayurveda without formal training in ayurvedic pharmacology.

If our aim is to develop Ayurveda to solve the major nutritional problems and chronic diseases of the people

in this country at lower costs, integrative research and transdisciplinary protocols are not the focal points. There have been instances in the regions where the government has successfully used ayurvedic experts in their own terms to solve public health problems for the needy. For instance, the government of Tamil Nadu undertook a project around the year 2000 to solve the problem of maternal anemia through ayurvedic preparations. Over a period of 1 year, a team of ayurvedic and siddha experts designed a package of ayurvedic lehyams and churnams; they were then produced by TAMPCOL (Tamil Nadu Medicinal Plant Farms and Herbal Medicine Corporation Ltd) and finally delivered by the ANMs to rural women in the target group. The ANMs were also given a kit of 50 ayurvedic medicaments for common ailments that were well received by health seekers in rural areas. This program has had a significant impact on maternal nutrition in Tamil Nadu<sup>[xiii]</sup>. Similarly, there are reports of the successful use of Ayurveda for chikungunya epidemic (identified as *Sandbi jwara*) in Gujarat and Kerala<sup>[xiiii]</sup>. The application of panchakarma and ayurvedic toxicology for Bhopal gas victims at Sambhavna Clinic is yet another instance of in situ clinical use of Ayurveda<sup>[xv]</sup>. None of these experiments called for RCTs.

Intensive documentation of the currently available ayurvedic treatments practiced in different regions in the country and their standardization is more important than the standardization of drugs. The former would contribute to consolidation of ayurvedic clinical experience and improvement of expertise of the ayurvedic professional and the latter will help the pharmaceutical industry more. If, we wish to export ayurvedic recipes, integrative medicine becomes necessary; but this is likely to create an Ayurveda without any roots, at the mercy of herbal products industry.

As a system of medicine that has already seen three millennia, Ayurveda is going through major transformation. A lot of research has been done in the past five decades by sociologists and anthropologists on the changes in traditional Asian medicine. These studies show how physicians of traditional medicine aspire to be like biomedical doctors or, are under pressure to prove themselves in an asymmetrical relationship to laboratory science. Medical professionals and social scientists are placed in an institutional setup where they face similar challenges. A culture of dialogue between social and medical sciences will be fruitful to gain mutual understanding and for a socially relevant professional practice.

### NOTES

- i. The debate between shuddha Ayurveda practitioners and integrationists on the Ayurveda curriculum is more than a century old.<sup>[46,47]</sup> After independence, the conflict became

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economic-political in nature. "There were 55 strikes involving 34 Ayurveda and 4 Unani colleges between 1958 and 1964.<sup>[48]</sup> The ISM graduates demanded parity with allopathic graduates in employment in government services, and a more scientific training and infrastructure. The state governments then introduced a bridge course in biomedicine to allow students to shift to biomedicine. This decision was resisted by biomedicine graduates although welcomed by ayurvedic students. The current college curriculum for BAMS degree was finalized around 1979 after state intervention to retain allopathic subjects in ayurvedic degree.<sup>[50]</sup>

- ii. Personal communication by Shailaja Chandra, Former Secretary, Dept. of AYUSH (1999–2002) on the basis of her study for the report on "Status of Indian Medicine and Folk Healing in India".<sup>[51]</sup> It is a comprehensive report on the current status of the Indian systems of medicine (Ayurveda, Unani, & Siddha) with special reference to research, education, drugs, health care, medicinal plants, and folk medicine. The study that commenced in 2010 is based on available documentation, as well as interaction/interviews with eminent experts and important stakeholders throughout the country and is carried out with the support of CCRAS & CCRUM. The report also highlights the gaps that need to be filled with the aim of improving access to identified health benefits that each system offers. It is expected to provide a preparatory framework for the formulation of the 12<sup>th</sup> Five-Year Plan proposals.
- iii. An ayurvedic doctor in the maternity ward of a government hospital in Delhi stated in an interview to the author that they have appealed to the government for permission to doctors with PG degree in Ayurveda to perform caesarian operation.
- iv. See for instance McKeown T. *The Role of Medicine: Dream, Mirage, or Nemesis?* London, England: Nuffield Provincial Hospitals Trust, 1976.
- v. Sharma Ashok 2008 "Indian herbal market to grow by 20 percent," *Financial Express* April <<http://www.financialexpress.com/news/Indian-herbal-market-to-grow-by-20/292575/0>>
- vi. The laboratory and its technology were seen by some early ayurvedic practitioners as mere techniques of verification. The techniques in themselves cannot generate the knowledge to be tested. While the techniques may be applied to verify, it is no substitute for original hypothesis and ideas. If we carry this idea forward, it becomes evident how laboratory-based biochemistry may absorb knowledge from other systems of medicine (in the name of prescientific input) and after verification and validation convert them to a scientific language purged of its history. Today it is called reverse pharmacology and is intended to draw recipes from classical medicines to cut the rising costs of biomedical drug research.
- vii. (a) Personal communication by Shailaja Chandra, Former Secretary, Dept. of AYUSH, with regard to her forthcoming report on "Status of Indian Medicine and Folk Healing in India," (b) "Role of AYUSH in Mainstreaming of Ayurveda: Study of Delhi Health Institutions" paper presented by Sharmistha Mallick (PhD student at CSSS, JNU, New Delhi), at the All India Sociological Conference at Cuttack, 27–29 December 2010, and (c) Author's own field work in Delhi and Chennai during 2002–2005.
- viii. That the current Ayurveda curriculum has eschewed nuanced theoretical concepts and skill based techniques like naadi pariksha, marma chikitsa, medicinal preparation and identification of herbs, simple external fomentations and applications using household spices (Dr. N. Sridhar in 'Challenges before ayurvedic education – Solutions' 2006, <http://www.serveveda.org/documents/Dr.%20N.%20Sridhar.pdf>; Sujatha 2007, 2009) is a serious concern among certain sections of BAMS/BSMS graduates themselves (Bode forthcoming)<sup>[49]</sup> who then try to bridge the gap by taking apprenticeship with vaidyas (Abraham forthcoming). While it is difficult to make a general statement on ayurvedic education in India owing to diverse kinds of training in

different regions, some details may be found in Abraham (forthcoming) and Ms. Shailaja Chandra's forthcoming report mentioned above.

- ix. Biochemical analysis of medicinal plants is in great demand from herbalists world over. My fieldwork in Europe in 2009–2010 as part of a UGC-DAAD Project on 'Globalisation and Ayurveda', shows how departments of European herbal medicine have drawn on published research on herbal medicinal ingredients taken from traditional texts of Asia; phytotherapy texts have several new entries of herbal medicines whose stated source is Asian medicine. The point is that integrative research leads to the reduction of Ayurveda into some kind of general herbal therapy to cater to global demand, by breaking up its principles of samyoga of herbal and mineral/metallic substances and the conjoint effect of external treatments. It is not that such changes in therapeutics are undesirable for Ayurveda per se, but that changes have to emerge from the clinical experience of those practising Ayurveda proper.
- x. Author's fieldwork on Ayurveda in the government health services in Delhi
- xi. <http://indianmedicine.nic.in/writereaddata/linkimages/2317403295-Ayurveda.pdf>
- xii. Unpublished papers presented by Dr. Padmanabhan, Joint Director, Dept of Health, TN government and Dr. P.L.T. Girija, Ayurveda vaidya in the team, in the National Seminar on 'Back to the future. Indigenous medicine in Contemporary India' organised by Centre for the Study of Social systems at Jawaharlal Nehru University, New Delhi, February 24–25, 2006.
- xiii. a) Workshop on 'Management of Chikungunya arthritis - An Ayurvedic approach', organised by Centre for Innovation in Science and Action, Thiruvananthapuram, 28th November 2006  
b) Personal communication by Dr. Leena Abraham, TISS, Mumbai, based on fieldwork in Kerala during 2006–07  
c) *The Hindu*, 23 September 2007; also see <<http://www.spiritindia.com/health-care-news-articles-2782.html>>
- xiv. See <http://www.bhopal.org/the-clinics/appropriate-treatment/herbal-medicine/>

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