

A FACADE OF CHALLENGES BEFORE AYURVEDA

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ABSTRACT

It is now possible to live 20 years longer than in 1920 and 10 years longer than in the 1930s. All thanks to breakthrough success in the field of medical research. Last 100 years have been perhaps the most remarkable and unique years in the history of modern medicine. In fundamental sciences discovery of double helix and completion of human genome projects have been achieved that had no parallels. Causes of early deaths, crippling disorders, genetic abnormalities have been identified. In diagnostics, technologies like MRI and PET scan added feathers ever to our caps. In surgeries, bypass, transplant and prosthetics changed longevity and quality of life it is through this research, all of this have been possible. Again this has helped to determine disorders and their impact on the person and society, thus developing appropriate treatments to improve the individual's quality of life. This scenario is prevailing not only in the arena of medicine but also in other fields too. Western or modern medical science is fast developing but this has not been the scenario in our field of *Ayurveda* as the ongoing research is on snail's pace in India. The outcomes of *Ayurvedic* research have not yielded so much fruitful results as the real laboratory based research is still awaited. This paper examines the trends and challenges of traditional medicine in India. Although the paper is on India, references are drawn from other Asian countries like China and Japan to buttress the growing demand for traditional medicine. The paper concludes that to minimize the current distrust between modern and traditional doctors and to achieve the objective of regulation, standardization and cooperation, both traditional and modern doctors must acknowledge their areas of strengths and weaknesses from which they operate and be genuinely concerned about the difficult but necessary task of being human. The present challenges are globalization of *Ayurveda* in the domestic as well as international market and industrialization of *Ayurvedic* drug sector.

Keywords: *Ayurvedic*, Standardization, Regulation, Globalization, Industrialization

INTRODUCTION

Each country has a unique Traditional Medical (TM) System with its own name: Indian System of medicine for India, Traditional Chinese medicine (TCM) for China, Traditional Korean medicine (TKM) for Korea, and Oriental medicine for Japan, Each having a characteristic distinctiveness^{1,2}. Ayurveda, one of the traditional Indian Medicine System remains the most ancient yet living system. W.H.O defines traditional medicine as the sum total of the knowledge, skill, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness³. Before Western culture was introduced to South Asia in 19th century, TM was the main medical system used to treat all types of diseases⁴. Similarly, prior to the introduction of modern medicine, *Ayurvedic* medicine used to be the dominant medical system available to people in India. However, the arrival of the Europeans marked a significant turning point in the history of this age-long tradition and culture but fortunately during the last decade, use of traditional medicine has expanded globally and has gained popularity. It has not only continued to be used for primary health care of the poor in developing countries, but has also been used in countries where conventional medicine is predominant in the national health care system⁵. Interest in TM is expanding not only on its products,

the practices and practitioners of *Ayurveda* are also the focal point.

Although India has been successful in promoting its *Ayurvedic* medicine with more research and science based approach but still it needs more extensive research and evidence base when compared with other Asian countries like China. The government of China and India provide governmental support to strengthen training, research and the use of traditional medicines in their national healthcare strategies. Traditional Chinese medicine is fully institutionalized and supported by the Chinese government. India is far behind China in this race. For instance, Chinese health authorities have launched a nationwide program to build 161 Chinese traditional medicine hospitals, each specializing in the treatment of a particular condition such as cancer, heart disease and Hepatitis. During the past twenty-five years, numerous schools of Chinese traditional medicine have opened in the West, and there has been a vast movement to get this type of medical therapy accepted. Currently, in U.S.A, 36 states license, certify, or at least formally allow the practice of acupuncturists as health professionals⁶. These circumstances have not arisen with *Ayurvedic* medicine. A few attempts have been made in the United States in recent years to evaluate the efficacy of overall *Ayurvedic* treatment, or of complex *Ayurvedic* programs such as *Pancha karma* but the results were not in our favour. If we analyze the undercurrents that fuel the lacunae two P's poverty and

poor policy come into picture. If there were no poverty in our country modern medicine wouldn't have paved its way the way it has. Until the vicious cycle of poverty is broken and neither the status of health care is raised nor can what that is good in *Ayurvedic* medicine can be salvaged and used as main stream medicine. The second reason is related to policy, to bring affordable health-care to the population in our country local governments and international agencies involvement is of paramount importance.

The blazing issues of concern which need to be addressed are

- Endorsement of Traditional plants by Development and Enforcement of policies as well as regulations.
- Validation of efficacy and regulation of safety.
- Standardization of material and high standard research.
- Therapeutic and Drug development research.

Endorsement of Traditional Plants

The Indian subcontinent is a vast repository of medicinal plants that are used in *Ayurvedic* medicine. Use of plants as a source of medicine has been an ancient practice and is an important component of health care system in India. India is the largest producer of medicinal plants. In India, around 20,000 medicinal plants have been recorded; however, traditional practitioners use only 7,000–7,500 plants for curing different diseases⁷. In India, around 25,000 effective plant-based formulations are used in traditional and folk medicine. It is estimated that more than 7800 manufacturing units are involved in the production of natural health

products and traditional plant-based formulations in India, which requires more than 2000 tons of medicinal plant raw material annually⁸. These medicinal plants demand intensive management. Different species each require their own distinct conditions of cultivation. The World Health Organization recommends the use of rotation to minimize problems with pests and plant diseases. Cultivation may be traditional or may make use of conservation agriculture practices to maintain organic matter in the soil and to conserve water, for example with no-till farming systems⁹. In many medicinal and aromatic plants, plant characteristics vary widely with soil type and cropping strategy, so care is required to obtain satisfactory yields¹⁰. The collection of these plants on commercial basis also involves destructive harvesting of these plants. Unregulated wild harvest, alongside habitat loss and degradation is leading to resource depletion which in turn is endangering the survival of these species. Despite the increasing use of medicinal plants, their future is being threatened by complacency concerning their conservation. Reserves of herbs and stocks of medicinal plants in our country are diminishing and several important species are in danger of extinction as a result of growing trade demands for safer and cheaper health care products and new plant based therapeutic markets. Among the endangered medicinal plants *Aegile marmelos*, *Acorus calamus*, *celastrus paniculatus*, *Commiphora mukul* are a few to mention¹¹.

India needs to tackle this issue. It is the responsibility of AYUSH department, under the Ministry of Health & Family Welfare to

come up with remedial measures like Effective Programmes dealing with 3 C's for these medicinal plants viz. Conservation, Cultivation and Community involvement and sustainable development.

- Medicinal plants Conservation: Firstly by Establishment of Research, Training and Capacity building centers for conservation, for undertaking validation and identification of active bio- molecules. Secondly by Foster conservation of genetic resources of Medicinal plants and promotion of genetic enhancement.
- Medicinal plants Cultivation: The Govt. shall help the farmers to establish link with markets so that cultivation of medicinal plants becomes market driven. Eye should be drawn towards Development of propagation methods to ensure high quality, pure seed and planting material available to the cultivators.
- Community involvement and sustainable development: By Establishment of village knowledge centers with special focus on medicinal plants, Promotion of participatory research and breeding and participatory knowledge management involving scientists and common people.

Standardization of material and High standard research

In conducting research and evaluating traditional medicine, knowledge and experience obtained through the long history of established practices should always be respected. Despite its existence and continued use over many centuries and its popularity and extensive use during the last decade, the training and research in the arena of *Ayurvedic* medicine, has not been accorded official recogni-

tion in our country to its paramount potential. In the past, research on *Ayurveda* was sparse and often poorly designed. For bringing more objectivity and also to confirm traditional claims, systematic clinical trials are necessary. Most clinical trials of *Ayurvedic* approaches have been small and have problems with research designs because of lack of Research Methodology.

Since *Ayurveda* has been practiced in India for thousands of years, the efficacy of the system is accepted here without any question. The huge, well preserved but far not mastered traditional literature represents the cornerstone for successful fundamental research in India. Fundamental research has to be done in the fields of *Ayurvedic* pathology, pharmacology/*Dravya Guna* (fundamental and clinical), pharmaceuticals (including knowledge about the right land for cultivation, the right place and conditions for collection and storage of plants), etc. Given the modern scientific standards being the reference for the global scientific community, it is necessary to take at least some of their aspects in account while defining new criteria for research.

However, during the last several decades, a great deal of effort has been made to study the scientific basis of *Ayurveda*. Much of the more recent research in India has applied Western biomedical research methods¹². More than forty research institutions in India have conducted clinical trials. In the United States, many of the well-designed studies on *Ayurveda* have been conducted both basic and clinical research on herbal products¹³. Evidence based research in *Ayurveda* is receiving larger acceptance in India and

abroad. The National Center for Complementary and Alternative Medicine has been inaugurated as the United States Federal Government's lead agency for scientific research in this arena of medicine. Its mission is to explore complementary and alternative healing practices in the context of rigorous science, support sophisticated research, train researchers, disseminate information to the public on the modalities that work, and explain the scientific rationale underlying discoveries. The center is committed to explore and fund all such therapies for which there is sufficient preliminary data, compelling public health need and ethical justifications¹⁴.

Validation of Efficacy and Regulation of safety

Despite so much progress in *Ayurveda*, The quantity as well as quality of the safety and efficacy data on *Ayurvedic* medicine is far from sufficient to meet the criteria needed to support its use worldwide. The major drawback associated with *Ayurveda* is the lack of evidence based on its standard profile and quality and safety aspects of Ayurvedic formulations. Ayurvedic literature is full of the use of metals like Gold, Silver, Arsenic, Copper, Iron, Lead, Mercury and Zinc¹⁵. The multimillion *Ayurvedic* drug industries are attracting so many pharmaceutical companies and thousands of products are being marketed per year. Unfortunately, none of them have given emphasis on the toxic effect of herbo mineral preparation. This lead to decrease in the projected efficacy, even though they are combination or modification of classical formulations. Heavy metal (HM) toxicity is a major safety issue in *Ayurvedic* formulations¹⁶. Accumulated toxicity data

on the hazardous effects of heavy metals have made health scientists afraid of heavy metals. As a result, renewed interest in the beneficial effects of metals and minerals is often viewed with skepticism. The American medical research community has sounded a heavy metal warning against *Ayurvedic* cures. Herbal products from the Indian system of medicine sold in the US contain dangerous levels of lead, mercury & arsenic¹⁷.

Specific guidelines have been laid by W.H.O for the assessment of the Safety, Efficacy and Quality of herbal medicines as a prerequisite for global harmonization¹⁸. These guidelines focus on the current major debates on safety and efficacy of traditional medicine, and are intended to raise and answer some challenging questions concerning the evidence base. They also clarify certain commonly used but unclear definitions. The guidelines present some national regulations for the evaluation of herbal medicine, and also recommend new approaches for carrying out clinical research, for example, using the WHO QOL user manual. The quality of life (QOL) manual was developed by the WHO Programme on Mental Health, and may also be used to evaluate the results of clinical research in traditional medicine. The methodologies guarantee the safety and efficacy of herbal medicines and traditional procedure-based therapies. Due to its hazardous effect, heavy metal content in plants and foodstuff must be limited and GMPs procedures should be implemented during manufacturing of *Ayurvedic* formulation. Environment factors can be controlled by implementing standard operating procedures (SOP) leading to Good Agricultural Practice

(GAP), Good Laboratory Practice (GLP), Good Supply Practice (GSP) and Good Manufacturing Practice (GMP) for producing medicinal products from herbal or natural sources¹⁹. The public belief that herbal and natural products are safer than synthetic medicines can only be ascertained by imposing regulatory standards on herbal products that should be manufactured using good practises²⁰.

Therapeutic research

Unlike in India and some other Asian countries, evidence for the validity of *Ayurvedic* concepts have first to be proved on an international level. A term called pseudoscience has been imparted to *Ayurvedic* research because of the lack of scientific soundness in the theoretical foundations of *Ayurveda* and quality of research. Most of the current writings in the history of medicine don't have an appropriate mention of the contributions of ancient Indian medicine reason being sparse research in the previous time. Today there is strong need to explain the fundamental principles of *Ayurveda* in a modern context as Medical science is an ever evolving science based on research and we have entered into an era of evidence gained by scientific methods. Consequently the emerging demand of an Evidence base can only be fulfilled by conforming scientific inputs to the ideologies and philosophy of *Ayurveda*. For example Importance and significance of diet for maintenance of health, prevention of diseases and recovery from illness has been well documented and emphasized in *Ayurveda*. Concept of *Dincharya* and *Ritu charya*, Concept of *Vega Vidharana*, Charaka's eight factors of dietetics i.e. *Ashta aahar*

vidh aaytan and *Virudhashana*, Concept of Nutraceuticals, *Rasayana* are certainly valuable in health promotion and disease prevention. Equally, no big initiatives have so far been taken to study these core concepts of *Ayurveda* scientifically at giant levels. These potentially valuables treasures in *Ayurveda's* unique concept and theories remain unexploited. It should also be noted that there are published and unpublished data on research in our traditional medicine in our country²¹.

CONCLUSION

People in both developing and developed countries have been using our traditional medicine for centuries. What more is most needed is the awareness in both academia and government that this *Ayurvedic* medicine forms a major public health asset. Availability of sufficient funds, modern technology for research initiative and wide spread proactive networking activities would see the more rapid progress of our *Ayurvedic* medicine research and practice. Building the knowledge base and formulating national policies to develop a cohesive and integrative approach to health care that allows governments, health care practitioners and, most importantly, those who use health care services, to access *Ayurvedic* medicine in a safe, respectful, cost-efficient and effective manner. The philosophy of *Ayurveda* which is based on hundreds or thousands of years of observations and experience needs to be practiced along with modern science and by the society. Needless to say our theory and application often differ significantly from that of allopathic medicine. With the help from respective expertise innovative and apt methodologies supported by common work-

able protocols or guidelines on *Ayurvedic* research methodology need to be developed. Centers in collaboration with WHO similar to NCCAM should be developed to conduct rigorous fundamental and applied research. Comparative clinical studies of our *Ayurvedic* and modern medicine should be undertaken to get the best of our *Ayurvedic* medicine. Evidence based research at all levels of pre clinical and clinical stages should be strengthened and supported. A global strategy to foster its appropriate integration, regulation and supervision will be useful to countries wishing to develop a proactive policy towards this important - and often vibrant and expanding - part of health care. Above all, it will help health care leaders to develop solutions that contribute to a broader vision of improved health and patient autonomy.

It's been said that Traditional medicine is a one tiny candle among many that can illuminate the path in its own limited way, for humanity to achieve an equitable and affordable health for each and every citizen on this planet. So What if our traditional *Ayurvedic* medicine is a candle and not a blazing torch? Great Chinese philosopher Confucius said, "It is better to light a candle than to curse the darkness". In this old wisdom rests our hope and reasons to make attempts.

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Source of Support: Nil

Conflict Of Interest: None Declared

How to cite this URL: Mahajan Roshi Et Al: A Facade Of Challenges Before Ayurveda. *International Ayurvedic Medical Journal* {online} 2017 {cited October, 2017} Available from: http://www.iamj.in/posts/images/upload/3762_3769.pdf