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Global health governance regimes are increasingly acknowledging the criticality of traditional medicine in universal healthcare. WHO now promotes the integration of safe and evidence-based traditional and complementary medicine (TCM) into national health systems although it has yet to define the term 'Integrative Medicine'. The emphasis on holistic healthcare is driven by several factors one of which is the changing health-seeking behaviour of consumers. Awareness of positive health solutions for non-communicable diseases in traditional medicine and policy thrust on evidence-based R&D, as well as quality of medicines among countries with strong traditions in such medicine systems, are some factors driving consumer confidence. However, the sustained growth of traditional medicine consumption demands preparedness. On the one hand, there is the relevance of preparedness for emerging disease patterns and traditional medicine's relevance. On the other hand, there is the need for effective utilisation of emerging technology for competitiveness of the sector. Artificial Intelligence is one such emerging technology poised to revolutionise productivity and business and may be harnessed for Ayush. Capitalising on the potential of allied sectors like medicinal plant cultivation is another area which, with the right policy strategy, will have far-reaching impact on the supply of medicinal plants and the growth of the agri-business industry.

This issue looks at the current and emerging trends in traditional medicine driven mostly by speculated future demands from the sector. Saranya S. presents a field-based study on access, availability and affordability of Ayurveda tertiary care treatments in hospitals, demonstrating that traditional medicine systems have been effectively addressing healthcare needs of local communities even today. T. C. James in his paper on integrative medicine highlights that while there is an increasing demand for traditional medicine services, standardisation, regulation, inadequate measurements of the effectiveness of T&CM medicines and therapeutic practices, insufficient insurance coverage and the formidable four 'A's: Awareness, Availability, Accessibility and Affordability are some of the challenges associated with integrative medicine. Vandana Siroha also delves into the role of standards, especially with the increasing demand for Ayush services in allied industries. Accreditation for short-term courses is the need of the hour. Her paper highlights the policy developments in accreditation norms for ensuring quality standards in Ayush education for ensuring quality services. The need to keep Ayush in sync with emerging trends and technologies and effectively utilise

them for the growth of Ayush is also studied in the current issue. Jayant Deopujari, while reviewing the emerging role of Artificial Intelligence, seeks to create a roadmap for leveraging technological advancements in Artificial Intelligence for Ayush education. He argues that since globally, the whole approach to education has been moving towards a personalised learning delivery approach, with the realization that traditional teaching methods fail to cater to students with different learning styles and preferences, AI can be a solution for that within ISM education. Analysing students' learning patterns and preferences and developing algorithms from the same can help in creating content and teaching methods which can cater to a diverse community of students with differing requirements. Sanket Chavan highlights the emerging issue of a sustainable supply of medicinal plants and the role of cultivation. Driven by high demand in both domestic and global herbal markets, he argues that medicinal plants present an ideal resource that can seamlessly integrate into technology-driven agricultural efforts. The global market for traditional medicine services is also expanding and is becoming a part of healthcare services exports for many countries in the Asia Pacific. Namrata Pathak's book review of Cooper *et al* (ed) maps the emergence of health tourism in the Asia Pacific region and the strategic advantage of some countries.

I am sure readers will find this issue of Traditional Medicine Review useful in understanding the emerging trends in governance, technology and industries allied to traditional medicine.

Namrata Pathak

How Much Technology Do We Need: Artificial Intelligence for Education in Indian Systems of Medicines

Vaidya Jayant Deopujari*

Vaidya Jayant Deopujari

Abstract: Indian systems of medicine (ISM) include Ayurveda, Unani, Siddha and Sowa-Rigpa. The education in the field of ISM is regulated by the National Commission for Indian Systems of Medicine (NCISM) which was created by the act of the Parliament of India in 2020. The competency-based dynamic curriculum and Syllabus as per the National Education Policy is in force. This paper is an attempt to create a roadmap for the implementation of Artificial Intelligence (AI) in ISM education, keeping in mind the peculiarities of ISM education and the imperativeness to leverage technological advancements in the education domain for effectively advancing the science and wisdom of ISM.

Keywords: AI, ISM education

Introduction

Though this paper's title resembles Leo Tolstoy's short story 'How much land does a man need', the subject in context over here is the application of Artificial Intelligence (AI) in Indian Systems of Medicine (ISM) education. As we are well aware, AI is right at our doorstep. It is an all-invading technology. There will be further exponential growth in this field with tremendous impact visible within as early a short span as the coming five years. It is opined by experts that those who are unable to catch up with transformations brought in by AI will eventually lose their relevance in the contemporary world and ISM education will be no exception to this rule.

AI is nothing but enabling machines or software to think like human (Verdegem, 2021). Machine learning, deep learning, data science, and language processing are the important subsets of AI. Machine learning and deep

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learning allow systems to learn and adapt in novel ways from training data (Janiesch *et al.,* 2021). With AI, machines acquire the capability to perform tasks like recognising patterns, and arrive at decisions and judgements like humans enabling them to take up a wide range of roles. There are three categories of Artificial Intelligence or rather, three stages of AI.[1]

1. Artificial Narrow Intelligence (ANI) – Through Machine learning it specialises in one area and solves one problem.

2. Artificial General Intelligence (AGI) –This can be termed as Machine Intelligence which refers to a computer that is as smart as a human across the board (Baum, 2017).

3. Artificial Super intelligence (ASI) – This is the third stage of AI called machine consciousness, which is an intellect smarter than the best human brains (Barrett and Baum, 2017). While ASI represents the highest form of AI, the reality is that it is yet to come into existence as it needs ability to outperform the deep complexity and remarkable creativity of the human mind. In human, maturing of intelligence over a period of time leads to the evolution of wisdom. It is unclear as to whether machines will be able to exhibit such transformation or not.

AI in Education

What AI has been able to achieve so far within the educational field across the globe is extremely promising. Given that the student community is diverse community, with students having different levels of capacity in relation to learning, teaching complex subjects can now be carried out as an enjoyable and engaging learning experience through the creation of a participatory experience using Virtual Reality (VR) tools. Tools that understand the requirements of individual students and help them overcome challenges of the complexities of language -through interpretational tools and easy to operate learning platforms -can help improve learning and understanding in a very significant manner through a personalised and adaptive learning mechanism. The wide utility of AI in relation to plagiarism detection, learning management systems, academic research, documentation and data analysis and analysing student's success metrics is well documented.

In the present world, AI plays a major role in handling administrative work within educational institutions such as staff scheduling, management, assessment and proctoring. This helps teachers to free themselves from these tasks and focus entirely on providing quality education. Other areas where AI has made significant contribution within educational institutions are transportation maintenance, cyber safety, security management etc.

The future is of digital learning where AI will have a leading role. Therefore, introducing AI into learning from an early stage prepares students to engage with AI successfully in the future. 'Catch them young', is the best policy to prepare future generations for any major transformative change anticipated to appear in an impactful manner. Building upon the National Education Policy 2020,[2] the honourable Prime Minister of India has suggested to all education regulators to incorporate AI in their curriculum and syllabus. The Ministry of Education, Government of India, has already arrived

at a decision to include AI as a part of curriculum and syllabus in high school education.

AI tools like Chabot[3] are extremely popular not only with students but also with entrepreneurs, legal, and medical professionals. It is observed in several instances that chatbot support has the potential to improve the quality of work. Concurrently, many educationists raise serious concerns about the use of chatbots by students. In many countries, there are active discussions happening regarding imposing bans on the use of chatbots by school children.

AI for Ayush Education

The education in Indian Systems of Medicine has evolved a long way with several revisions in its pedagogy, assessment patterns, resource and teaching materials, application of knowledge etc. It initially came into existence as a Gurukula system, with personalised teaching and progressive unfolding of knowledge. It involves the study of a single Samhita and is successfully transitioned to the current era of competency-based curriculum and syllabus.

In all other sectors of education, there are models for comparison, with the exception of ISM education. India is the only country in the world where ISM education exists in a well-structured manner. In other words, India is a world leader in ISM education. Hence, we do not have any reference point or model for the use of AI in ISM anywhere in the world.

It is the responsibility of the leaders in the field of ISM education to gauge sector specific needs to incorporate AI in ISM education to sustain its relevance in modern times. Assessment of the degree of AI elements required within ISM education is a challenge and an equal responsibility.

The AI Tools for Ayush

With the consistently evolving possibilities of AI, there is evidently ample scope and relevance for its integration into the ISM education sub-sector. Students of ISM disciplines need to engage with the philosophical foundations of their Shastras through the medium of core important texts which are often in languages not widely spoken. A lot of these texts have now been converted into digital mode. As learning the core language of the classical texts within ISM disciplines is a mandatory requirement for students, AI-based language processes and machine learning algorithms can help create effective formats of these texts that are easily understandable. Not only does this help in preserving the cultural heritage of ISM, this also promotes a much deeper understanding and respect of the traditional wisdom of ISM within the global community.

Globally, the whole approach to education has been fast moving towards a personalised learning delivery approach, with the realisation that traditional teaching methods fail to cater to students with different learning styles and preferences. AI can be a solution for that within ISM education. Analysing students' learning patterns and preferences and developing algorithms from the same can help in creating content and teaching methods, which can cater to diverse community of students with differing requirements. This will significantly enhance engagement, understanding and retention levels.

Traditional clinical training has more or less depended on acquiring experience in real-life settings which in itself is subject to factors like access to clinical exposure, availability of resources (human and material) as well as time constraints. AI and Virtual Reality (VR)[4] tools can successfully overcome these limitations and introduce new approaches for clinical training in ISM education through customised learning experiences. Practice sessions for students on diagnosis and treatment can be carried out in a controlled and safe environment supported by VR simulations. This sort of two-way interactive approach can greatly strengthen the skills, confidence and readiness of ISM practitioners, leading to advanced clinical outcomes and enhanced quality of care.

Research and innovation in ISM have the potential for further progress through AI. Traditional research methods are dependent on slow, laborious data analysis which is error-prone. AI algorithms can swiftly and accurately process huge volume of data and can point out insights, patterns and connections that may not be usually detected by regular researchers. AI can also help in creating meaningful collaborations between ISM practices and modern healthcare systems that will ultimately benefit patients and communities.

Some common educational AI tools may find their applicability in ISM education. Along with this, sector specific tools needed for teaching and learning should be developed in ISM education such as:

- Tools that aid the teaching of Samhitas[5] 1–interactive Samhita learning for understanding fundamental principles.
- VR for the understanding concepts like Shat Kriya kaal, Dhatu Poshana Nyaya.
- AI tool for the assessment of Prakriti, Sara, Samhanana etc (Upadhyay *et al.* 2017).
- Sector specific AI tools for developing clinical competencies, selection of drugs.
- Tools that aid disease-specific personal advice regarding lifestyle etc.
- AI for teaching technology etc.
- Tools for disease/system-specific simulators.
- Developing feedback mechanisms for updating technology.
- Development of suitable technology for training of trainers etc.

Though the above list is in relevance to the discipline of Ayurveda, a similar list for the disciplines of Siddha and Unani can be evolved with the help of experts.

The Required Precautionary Measures

Today there is a global acknowledgement of AI's potential to help make many processes swifter, fairer and more efficient. However, there are serious ethical, safety and societal risks associated with the rapid growth of AI technologies. Regulations on AI are still in nascent stages,especially creating challenges at a time when the private sector drives progress in AI. Hence, just as the promising avenues that open with AI integration exist, the potential challenges of the same need to be discussed in the same breath.

Time-Technology pace axis: The astonishing speed at which AI is evolving ceaselessly makes it nearly impossible to keep pace with all advancements within the field. For example, facial recognition technology

which was earlier used as part of mass surveillance in crowded spaces has rapidly evolved into a personalised technology, finding its way into our smartphones. Such rapidity can be challenging to keep pace with if we view it from the timeline of a student's professional education journey and the time investment that both teachers and students have to dedicate to teaching aids. Hence, it becomes important to prioritise AI tools and identify important areas of study to ensure that there is a clear focus on topics/subjects that need a deeper understanding of their concepts which is not achievable by current teaching methods.

Ethical concerns in relation to students: As AI is being utilised extensively now in administration management, ethical issues with regard to data security, privacy and consent in relation to data collection, storage and analysis need to be considered very carefully. It will be important for educational institutions to adhere to regulations and standards that govern the utilisation of AI. Also changing algorithms of AI that evolve over time need to be carefully monitored to ensure that no bias creeps in regarding the management of students who have socio-economic or other demographic differences.

Technology versus Psychology: AI cannot be permitted to eventually become a substitute for critical human thinking and human interaction. It is essentially to be employed as a supporting tool to improvise the experience, understanding and pleasure of learning and healing and not entirely replace individual efforts. It is not tough to imagine the psychological impact that the absence of human interaction can have on students and patients. It will be therefore important to create a fine balance between the application of AI tools and a human-centred approach in ISM education and service delivery.

Sensitivity in content creation: While creating AI tools in ISM education, it becomes important to work closely with ISM practitioners, scholars, researchers and other stakeholders to ensure that the content that is being created is sensitive towards region-specific cultural and social environment.

Static v/s dynamic approach: The inclination and willingness to integrate technology within the ISM education industry will be a very important factor in the success of utilising AI for improvising teaching approaches and definitive learning. As ISM disciplines generally articulate the argument that their philosophy and theory are time-tested and eternal, the inclination to follow a time-tested traditional mode of teaching is expected to remain significant. It will be important to shed off a static view of teaching approaches and maintain a dynamic awareness of constant changes happening within the global education space to ensure that a disinterest in embracing technology does not eventually lead to ISM no more being a favoured discipline of choice by prospective professional learners in the future.

I*ssues of accessibility*: Access to technology is important for students to gain the benefit of AI tools. It is important to ensure that all ISM students can benefit from AI-enhanced learning experiences. It is equally important to assess content created by AI in relation to accuracy, reliability and relevance. This would require the implementation of mechanisms to continuously monitor AI materials for

maintaining the credibility and integrity of ISM education.

Action Plan and the Way Forward

To begin with, a sector-specific study needs to be conducted which can be divided into following stages.

- Assessing the readiness of the tutors and the students for acceptance of AI.
- A subsequent expert-led sector-specific research for mapping the need and scope of AI in ISM education.
- Creation of sector-specific database to facilitate the smooth implementation of AI (This has its inherent challenges).
- Leveraging existing databases like standard terminologies and international classification of diseases (ICD-11) for data pooling and data mining.[6]
- Creation of a think tank for overall monitoring and futuristic planning for implementation of AI in ISM education.

NCISM has already initiated discussions with AI experts to assess the readiness of the tutors and the students supplemented by the constitution of a committee of tech-savvy ISM teachers to identify sector-specific areas for creating AI tools for ISM education.

Conclusion

AI tools for diverse functions in the education sector are ever-expanding. It is pertinent to remember the primary relevance and utility of AI tools as applications and be vigilant on evolving related philosophical and ethical issues and their impact on humans. Qualitative outcomes, both with education and healing in ISM, are primarily dependent on the physical and mental connectivity between individuals and nature. The understanding of the extent of the need for AI technology and its applicability therefore becomes critical. As its prowess is beyond doubt, its ability to intensively influence and haul in a non-vigilant mind is without question. This can pose eventual threats to the identity of Indian Systems of medicine in the near future.

Endnotes

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Integrative Medicine – The New Approach to Wellbeing Status, Challenges and Prospects

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Abstract: Integrative Medicine, which has merged conventional treatments with complementary and alternative therapies, is gaining global recognition. The World Health Organization (WHO) advocates for its integration into national health systems to achieve universal health access. Many countries have acknowledged Integrative Medicine. Globally chronic diseases are rising and Integrative medicine may be able to provide additional tools for disease management and prevention, this can reduce the burden on healthcare systems. Despite benefits like improved patient outcomes and satisfaction, challenges such as lack of standardization, regulation, and insurance coverage persist. Addressing these through research, education, and policy development is crucial for leveraging Integrative Medicine's holistic approach in managing rising chronic diseases and reducing healthcare burdens. WHO and countries with rich resources in T&CMs such as China and India must undertake more research to demonstrate the safety and effectiveness of Integrative Medicine therapies.

Keyword: Integrative Medicine, Health care, T&CM

Introduction

The third goal in the 2030 Agenda for Sustainable Development Goals (SDGs) is to ensure healthy lives and promote wellbeing for all, at all ages. One of the targets of this goal is to achieve universal health coverage and another contains promotion of mental health and wellbeing. To achieve this goal and its targets health systems across the world have to employ all available resources in a coordinated and integrated way. It can no longer rely only on conventional medicine or what is generally referred to as modern medicine since a large number of people in most countries use other systems.

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Almost all Indigenous Peoples have their individual systems of medicine with which they have organic associations and which are part of their cultures. Even many non-Indigenous Peoples also have a natural preference for certain traditional systems of medicine such as Ayurveda in India. International and national health policymakers have, of late, realised the importance of using such other systems also along with conventional systems of healthcare to achieve SDG-3. Integrative Medicine is the new approach the World Health Organisation (WHO) calls for.

The Gujarat Declaration, brought out at the end of the WHO Traditional Medicine Global Summit 2023 "Towards health and wellbeing for all", held in Gandhinagar, Gujarat, India, on 17 and 18 August 2023, used the term 'Integrative Medicine' when it stated that the Summit reaffirmed global commitments related to Indigenous knowledge, biodiversity and Traditional, Complementary and Integrative Medicine (TCIM) (WHO,2023). The term used in the WHO Traditional Medicine Strategy (2014-2023), which has since been extended for two years, is Traditional and Complementary Medicine (T&CM) (WHO, 2013). This document, of course, used the term 'integrative' three times in the main text, once to say 'integrative approach to health care', and twice to refer to 'integrative model' in healthcare delivery. The WHO's own 2019 report on Traditional Medicine was titled 'WHO Global Report on Traditional and Complementary Medicine 2019'. Aalthough the Unit that produced the report had already been renamed as'Traditional, Complementary and Integrative Medicine (TCIM)' unit way back in 2017. The objective of the renaming was "to cover the integrative approaches of both T&CM and conventional medicine regarding policy, knowledge and practice". The WHO Draft Traditional Medicine Strategy 2025-2034 issued on 10 April 2024 for public consultation uses the term integrative medicine as a means to achieve universal access to health and wellbeing.

The basic concept of Integrative Medicine is practically the same as the Traditional Medicine systems like Ayurveda, that is, health is a fine balance between the physical, emotional and spiritual aspects of an individual and the objective of therapy is not treatment of any particular symptom but holistic renewal of the immune system. In many countries, post-World War II modern Western medicine (Allopathy) emerged as the dominant and in many cases the sole officially recognised medical treatment. The discovery of microorganisms and the development of the germ theory and vaccines contributed to this trend. However, towards the last decade of the 20th century, in the US and many other economically advanced countries, patients and physicians started exploring alternatives such as Naturopathy and, in many cases, using them as complementary to conventional medicines . Exposure to established traditional medicine systems such as Indian Systems of Medicine and Traditional Chinese Medicine contributed to this movement. That is how the Integrative Medicine model found its way to WHO recognition.

WHO now promotes the integration of safe and evidence-based traditional and complementary medicine (TCM) into national health systems. While WHO has replaced the term 'Alternative Medicine' with the term 'Integrative Medicine', it has not asyet finalised ano definition of the

term. It, though, has a project underway to define and understand "integration as well as integrative medicine". The Draft Traditional Medicine Strategy 2025-2034 defines Integrative Medicine as "an interdisciplinary and evidence-informed approach aimed at achieving whole-person health and wellbeing by using a respectful combination or fusion of biomedical and traditional and/or complementary medical knowledge, skills and practices. It provides holistic care spanning the care continuum and may involve various health care providers and institutions." There are, however, many definitions of Integrated Medicine going around. The Academic Consortium for Integrative Medicine and Health defines it as 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, health care professionals, and disciplines to achieve optimal health and healing . The American Board of Integrative Medicine (ABOIM) and the Consortium of Academic Health Centres for Integrative Medicine, also follow this definition.

According to the National Centre for Complementary and Integrative Health (USA), integrative medicine is a coordinated way of bringing together conventional, complementary and alternative approaches that have shown high-quality evidence-based effectiveness and safety. It clarifies complementary and integrative medicine as a group of diverse medical and healthcare systems, practices, and products that are not generally considered to be part of conventional medicine . For example, it may include along with modern diagnostic practices using equipment, prescription of Yoga, physical exercises, food supplements, dietary regulations, and so on to achieve optimal health. A 2023 paper claimed that "Integrative medicine (IM) is the medical term used when complementary and alternative medicine (CAM) therapies are integrated with conventional medical care."(Konigsberg, 2023).

In short, Integrative Medicine is practising medicine in a way that selectively incorporates elements of complementary and alternative medicine into comprehensive treatment plans alongside conventional methods of diagnosis and treatment. For example, massage therapy can be used to manage pain alongside physical therapy. Or, acupuncture may be used instead of pain medication. It perceives health holistically. The foundation of integrated medicine lies in considering a patient's physical, mental, emotional, and spiritual aspects of health. It takes into account lifestyle, diet, physical activity, and ways to relax. It emphasises efficient self-healing of the body and strives to achieve balance and better wellbeing (Umberger, 2018).

Many practitioners and patients hold that there are many potential benefits of integrative medicine for patients, such as improved patient outcomes, reduced side effects from conventional treatments, and enhanced patient satisfaction. Conditions such as chronic pain, anxiety, depression, and insomnia are considered particularly suited for integrative therapies. Studies have shown that the new approach may present numerous benefits for a person's wellbeing. First of all, it improves the overall quality of a patient's life by helping him/her reduce or eliminate reliance on over-the-counter medications. It also helps reduce stress levels which in turn

aids in managing existing conditions or preventing new diseases. It has the potential to foster communication between patients and their healthcare providers, especially in the case of Indigenous Peoples and tribals who have their own separate traditional medicine systems. In an ideal situation, it is the best of both worlds' approach. It offers diagnoses and treatments which stay current with advances in medical science while also leveraging traditional roots of healing and equips people with healthy lifestyle tools necessary for addressing potential problems rather than simply treating symptoms once they arise.

Current Global Status of Integrative Medicine

According to WHO, 170 countries (88 per cent of WHO Membership) use T&CM. These are the countries that have, for example, formally developed policies, laws, regulations, programmes and offices for T&CM. The number of countries with national policies on T&CM in 2018 was 98 and with laws on T&CM, the number is 109 (WHO, 2019). Many countries have acknowledged Integrative Medicine. Medical Tourism Magazine in a 2024 paper mentioned Germany (Pioneering Integrative Healthcare), India (A melting pot of traditional and Modern Medicine), China (Traditional Chinese Medicine and Modern Healthcare), Thailand (Excellence in Holistic Wellness), Switzerland (Combining Luxury with Medical Expertise), Japan (Innovating in Integrative Medicine), South Korea (Advanced Technology Meets Eastern Medicine) and Brazil (Rich in Natural and Holistic Therapy) as the best countries in the world for Integrative Medicine from medical tourism angle. Though the paper lacks data back-up, it reflects current perceptions and that is very important for Integrative Medicine in Medical Tourism. It also shows the interest and acceptance of tourists for Integrative healthcare.

Europe, with its long history of medical advancements and diverse cultural influences, has a complex and multifaceted approach to integrative medicine. As per a 2015 report, based on a survey between 2010 and 2013 (both years inclusive), the estimated prevalence of Complementary and Alternative Medicine in European countries, including Israel, shows as high as 45 to 59 per cent in Denmark and a low of 4.6 to 62 per cent in Germany. The estimates in percentages for other countries is areas follows: Israel (5 to 43), Sweden (5 to 64) Slovenia (6.6), Norway (9 to 53), Finland (11 to 43), Poland (14.4), Ireland (15), Spain (15 to 47), Italy (16 to 84), Netherlands (17.2), France (21), and Portugal (43.7) (Hegyi, 2015). With all infirmities and incompleteness, the data serves a point that in Europe Complementary and Alternative Medicine (CAM) has a market. As per another study (published in 2018), in 11 countries, the use of CAM varied from 9.5 per cent in Hungary to 39.5 per cent in Germany. The other countries included in the study are Belgium (24.6), Czech Republic (25.0), Denmark (32.1), Estonia (35.1), Finland (35.3), France (31.2), Ireland (19.2), Israel (15.1)and Lithuania (32.9).

Out of the 53 WHO European Region countries 45 have established regulatory frameworks for complementary and alternative therapies, ensuring that practitioners meet certain standards of training and practice(WHO, 2019). This has led to a greater acceptance of integrative medicine within the mainstream healthcare systems. A study on medical reimbursement through insurance in France found that

homeopathic preparations are prescribed in combination with allopathic medicines as is expected under Integrative Medicine. The National Institute for Health and Care Excellence (NICE), UK has recommended to the National Health Service (NHS) the use of CAM in certain circumstances such as the Alexander technique for Parkinson's disease, ginger and acupressure for reducing morning sickness, and manual therapy for lower back pain. Consumer surveys consistently show positive public attitudes to complementary medicine, with about 60 per cent of the public in the Netherlands and Belgium declaring themselves ready to pay extra health insurance premiums for it and 74 per cent in Britain favouring it being available on the NHS.

As is clear from the WHO Global Report (WHO, 2019) and as per news reports, European healthcare systems are increasingly recognising the value of integrative medicine. Hospitals and clinics are beginning to offer a range of complementary therapies alongside conventional treatments, providing patients with more comprehensive care options. For example, cancer patients may have access to acupuncture, massage, or mindfulness programmes to help manage the side effects of treatment. There is also a growing body of research in Europe exploring the efficacy and mechanisms of complementary therapies. This research is helping to bridge the gap between traditional practices and scientific evidence, contributing to the development of integrative medicine protocols that are grounded in both clinical experience and empirical data. Also, several European universities and medical schools now offer courses or degrees in integrative medicine, providing healthcare professionals with the knowledge and skills to incorporate complementary therapies into their practice.

In North America, Integrative Medicine has been gaining momentum as a way to provide comprehensive and personalised healthcare that combines the best of conventional medicine with complementary and alternative therapies. The movement towards integrative medicine in the region is driven by a growing recognition of the importance of treating the whole person—body, mind, and spirit—and by an increasing demand from patients for more holistic healthcare options. According to a 2022 survey , of adults aged between 50 and 80, about 66 per cent reported using at least one integrative medicine strategy to prevent or treat a health concern in the USA. Several leading medical schools, such as Harvard and the University of Arizona, have established integrative medicine programmes and offer fellowships for physicians interested in the field.

The National Centre for Complementary and Integrative Health (NCCIH) at the National Institutes of Health (NIH) plays a significant role in funding research on complementary and alternative therapies, helping to build the evidence base for their effectiveness and safety. The five objectives of NCCIH are to advance fundamental science and methods development, advance research on the whole person and on the integration of complementary and conventional care, foster research on health promotion and restoration, resilience, disease prevention, and symptom management, enhance the complementary and integrative health research workforce, and provide objective evidence-based information on complementary and integrative health

interventions . Canada also has a growing interest in integrative medicine, with many healthcare practitioners incorporating complementary therapies into their practices. The Canadian College of Naturopathic Medicine and the Canadian Association of Naturopathic Doctors are examples of organisations that promote the integration of naturopathic medicine with conventional healthcare. The Canadian Institutes of Health Research (CIHR) supports research into complementary and alternative medicine, and there are integrative medicine programs and clinics across the country that offer a range of services, from acupuncture and herbal medicine to mindfulness and nutrition counselling.

South America, with its rich cultural heritage and diverse indigenous populations, has a long history of traditional medicine that predates the arrival of European colonizers. Indigenous practices such as the use of medicinal plants, shamanic healing, and spiritual rituals have been integral to the healthcare of local communities for centuries. Traditional medicine in South America is highly varied, with each country and region having its unique practices and remedies. For example, in the Amazon basin, traditional healers known as shamans use a wide range of plant-based medicines, including the psychoactive brew ayahuasca, for healing and spiritual purposes.

In the Andean regions of countries like Peru and Bolivia, traditional medicine often involves the use of coca leaves for medicinal purposes and ceremonial practices. Brazil is one of the early ones in integrative medicine. It has a National Policy on Integrative and Complementary Practices in its United Health System. In 2015, the Brazilian Ministry of Health issued a reinforcement to this policy to increase access to integrative and complementary health practices (ICHP). As per a 2019 national survey,6 per cent of Brazilian adults reported using ICHP in the previous 12 months. According to the authors of the survey report, women, middle-aged individuals, chronic patients, people with depression, and wealthier Brazilians are more likely to use any type of ICHP (Garcia-Cerde, *et al.* 2023.). Formal recognition of traditional healers and the inclusion of traditional medicine in national health policies are growing in other countries like Argentina and Bolivia.

Africa, with its diverse cultures and ancient civilisations, has a rich repository of traditional medicine that has been passed down through generations. These indigenous practices, which include the use of medicinal plants, spiritual healing, and herbal concoctions, have long been the primary source of healthcare for many African communities. About 87 per cent of the population in Africa is using TCM. National policies on TCM exist in about 40 countries (WHO, 2019). Many have legislation also. South Africa has established the Traditional Health Practitioners Act, which aims to professionalise the practice of traditional medicine. In recent years, there has been a growing movement towards integrative medicine on the continent, as African nations seek to blend these traditional healing methods with modern healthcare systems to provide comprehensive and culturally sensitive medical care. Studies, however, reveal that integration has not been successful.

Integrative Medicine has gained traction in Australia and New Zealandas

a way to provide holistic healthcare that respects both indigenous practices and modern medical knowledge. In Australia, it is increasingly recognised as a valuable approach to healthcare. The country has a strong foundation in Western medicine but also respects the traditional practices of its Indigenous peoples, such as the use of native plants for medicinal purposes and spiritual healing practices. Australian healthcare providers are exploring ways to integrate these traditional therapies with conventional medicine to offer patients a more comprehensive care experience. The Australian Traditional Medicine Society (ATMS), with 11,800 members, is one of the organisations promoting the integration of complementary therapies into mainstream healthcare. New Zealand's healthcare system also shows an interest in integrative medicine, with a focus on incorporating the traditional healing practices of the Māori, the indigenous people of New Zealand. Māori healing, known as "Rongoā," involves the use of native plants, spiritual practices, and a deep understanding of the connection between the environment and health.

The New Zealand Ministry of Health recognises the importance of traditional Māori health practices and has initiatives aimed at integrating these with Western medicine. In the Pacific Islands, the concept of integrative medicine is also advanced as a potential model for health service delivery and in some Pacific Island nations, traditional healers work alongside medical professionals in clinics and hospitals, providing a bridge between cultural practices and biomedical treatments (WHO, 2022).

Asia, with its vast expanse and rich cultural tapestry, is home to some of the world's oldest and most sophisticated systems of traditional medicine. From the yin-yang philosophy of Chinese medicine to the tri-dosha theory of Ayurveda in India, these ancient practices have shaped the healthcare landscape of the continent for millennia. Vietnam formally incorporated the traditional medicine system into the national healthcare system in 1956, PRC China in 1958 and India in 1970 (Bodekar, 2020) . Asia leads in the percentage of people using traditional medicine. In the contemporary era, Asia is leading the way in integrative medicine, blending these time-honoured approaches with the latest advances in Western medicine to create a holistic model of healthcare that addresses the mind, body, and spirit.

Hospitals and clinics across Asia now offer a range of integrative medicine services, from Yoga, Ayurvedic massages, acupuncture and herbal medicine to mindfulness and meditation, alongside conventional treatments. This integration is not only reflected in clinical settings but also medical education, with many universities offering courses in traditional medicine.

China has established a network of TCM hospitals and clinics, while India's AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha, Sowa-Rigpa, and Homeopathy) system is actively promoted by the government and accepted by most people (WHO, 2019). Studies and experiments on the effectiveness of Integrative Medicine are being carried out in both countries. The Guang'anmen Hospital in China runs regular training programmes for integrating TCM into cancer care. It is also collaborating with the WHO Centre for Traditional Medicine

Asia–Pacific to develop guidelines for standardised treatment of cancer with Chinese medicineand has cooperated with Malaysia's Tung Shin Hospital for 15 years in the treatment of morethan 10,000 cancer patients every year.

In 2014, the Government of Kerala established a Centre for Integrated Medicine and Public Health in the Institute of Applied Dermatology (IAD), Kasaragod for further research and development activities related to community dermatology. It is collaborating with seven institutions and universities (Bodekar, 2020). The CSIR (Council of Scientific and Industrial Research) Regional Research Laboratory, Jammu has been converted into the Indian Institute of Integrative Medicine (IIIM) in 2007 with the mandate to discover new drugs and therapeutic approaches from natural Products, both of plant and microbial origin, enabled by biotechnology, to develop technologies, drugs and products of high value for the national and international markets.

Challenges of Integrative Medicine

There are several challenges associated with Integrative Medicine, such as lack of standardisation and regulation, Inadequate measurements of the effectiveness of T&CM medicines and therapeutic practices, Insufficient insurance coverage, and the potential risks for interactions between T&CM therapies and conventional medications. But upfront global IM healthcare faces the formidable four 'A's: Awareness, Availability, Accessibility and Affordability.

While in most developing countries there is very good awareness about the T&CM, they often lack knowledge about the integrative approach. In most of the developed countries, even the knowledge about T&CM is limited. Unless and until patients have good awareness about the various systems being integrated it will not be an easy task for medical practitioners to go for IM. The second factor is the availability of the facilities. Even in countries like India availability of IM institutions is not very high. Even where they are available accessibility is not easy and many a time they are beyond the affordable levels of low-income countries. These four challenges have to be overcome first if IM is to be made a viable system globally. The other challenges are more specific.

Lack of Standardisation and Regulation: As is clear from the previous section, Integrative Medicine encompasses a wide range of therapies, from Ayurveda, Siddha, Unani, and Yoga, to Traditional Chinese Medicines and Acupuncture, each with different standards and protocols. Folk medicines, which in most places have no regulations, are also increasingly being used. The lack of standardised practices and regulatory frameworks can lead to variability in the quality and safety of treatments. Further, different countries have varying levels of regulatory oversight for T&CM therapies. In some regions, there may be limited or no regulation, leading to risks associated with unproven or unsafe treatments (Kalariya *et al.* 2023).

Limited Scientific Evidence: There is often insufficient high-quality research on many complementary therapies. Modern medical science relies mostly on randomised clinical trials for approval of new drugs which is mostly lacking in T&CM which relies on its reputation and long use. This lack of robust evidence hinders acceptance by the medical.

Conducting clinical trials for integrative therapies can be complex due to issues like standardising interventions and placebo controls, and dealing with the holistic nature of many therapies, which do not easily lend themselves to traditional biomedical research methods.

Cultural and Perceptual Barriers: Different cultures have varying beliefs and practices concerning health and healing, which can influence the acceptance and integration of various therapies. For example, herbal medicine might be a standard practice in one culture but viewed sceptically in another. In many Western countries, there is a tendency to view complementary therapies as less effective or unscientific, which can hinder their integration into mainstream medical practice.

Educational and Training Challenges: There is a significant disparity in the training requirements for practitioners of integrative therapies. Some may have rigorous formal education and certification, while others may operate with minimal oversight. Medical schools and training programmes often do not include comprehensive integrative medicine education, leading to a gap in knowledge and understanding among healthcare professionals about the benefits and limitations of these therapies.

Economic and Access Issues: Many integrative therapies are not covered by insurance, making them inaccessible to a large portion of the population. The high cost of some treatments can limit their use and integration into public healthcare systems. Integrative medicine may require significant resources for training, research, and the development of new healthcare models, which can be a challenge for resource-constrained settings.

Integration with Conventional Medicine: Effective integration requires collaboration between conventional medical practitioners and T&CM therapy providers. This can be challenging due to differences in philosophy, training, and practice standards. In many countries, healthcare systems are not well-equipped to integrate different types of therapies, often due to logistical, bureaucratic, or structural barriers.

Patient Safety and Quality Control: The use of non-regulated or poorly understood therapies can pose risks to patient safety, including adverse interactions with conventional medications and the potential for harm from unverified treatments. Ensuring the quality of herbal and alternative products is a major challenge, as there are often issues with contamination, adulteration, or incorrect labelling.

Ethical and Legal Issues: Patients need to be fully informed about the evidence, risks, and benefits of integrative therapies, which can be challenging due to the variability in available information. Integrative practitioners must navigate complex legal landscapes, where malpractice laws may not be well-defined for non-conventional treatments, leading to potential legal risks.

Research and Evidence Integration: The existing research on integrative therapies often varies greatly in quality and methodology, making it difficult to integrate findings into evidence-based practice guidelines. Funding and research priorities are often skewed towards conventional medicine, limiting the development of evidence-based integrative therapies Research practices must adhere to ethical guidelines, including obtaining prior informed consent, and ensuring patient safety.

Addressing these challenges requires a multifaceted approach, including policy reforms, increased funding for research, and enhanced educational programs for healthcare professionals. Collaborative efforts among governments, academic institutions, healthcare providers, and patients are essential to overcome these barriers and fully realise the potential of Integrative Medicine on a global scale. The initiatives must be undertaken with cultural sensitivity lest they may backfire.

Prospects and Opportunities

The WHO has been, of late, advocating Integrative Medicine as the way to future healthcare. As is clear from the brief narration on the status of the new healthcare model in different regions, its acceptance is growing. This presents better prospects for Integrative Medicine. There are certain inherent benefits in this model. It offers a holistic approach to healthcare that can address the physical, psychological, and spiritual aspects of health which has the potential to result in better patient outcomes and satisfaction. Worldwide, there is a growing demand for patient-centred care and Integrative Medicine aligns with this trend by emphasising personalised treatment plans and patient empowerment.

Theoretically, the integration of different medical traditions can foster innovation and collaboration among healthcare professionals, leading to new insights and treatment approaches. Globally chronic diseases are rising and Integrative medicine may be able to provide additional tools for disease management and prevention. If successful, this can reduce the burden on healthcare systems. It will also be necessary to develop standardised protocols for integrating T&CM therapies into conventional healthcare. As of now, it is left to individual institutions and practitioners. To fully realise the prospects of Integrative Medicine, global efforts are needed to address the challenges through research, education, and policy development.

Conclusion

Integrative Medicine, which combines conventional medical treatments with complementary and alternative therapies, has been gaining recognition and acceptance worldwide. The global market for T&CM is substantial and growing. Integrative Medicine has the potential globally to create economic opportunities, from job creation to the development of new health products and services. However many conventional medicine practitioners and common people have many misgivings about T&CM and also about integrating that with modern medicine. WHO and countries with rich resources in T&CMs such as China and India must undertake more research to demonstrate the safety and effectiveness of Integrative Medicine therapies. Research consortiums can be formed for this. Universities and independent research councils must be encouraged and financially incentivised for such research. Apart from the therapeutic effects, the sociological, cultural and economic impacts also should be studied.

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Medicinal and Aromatic Plants (MAP) Sector in India: A Review of Potential for Agribusiness

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Abstract: Medicinal and Aromatic (MAPs) plants offer a strong potential alternative for agriculture diversification in India. The MAPs, which are in high demand in both domestic and global herbal markets, present an ideal resource that can seamlessly integrate into technology-driven agricultural efforts. Medicinal plants serve as the primary constituents of medicines in many traditional healing systems and have also inspired the development of numerous pharmaceutical drugs. A review of returns from the cultivation of medicinal plants shows that income generated from some surpassesthe income generated from major traditional cereals crops such as paddy and wheat. Notably, species such as Shatavari (Asparagus racemosus), Sarpagandha (Rauvolfia serpentine), and Ghrit Kumari (Aloe vera) generate profits exceeding 55 per cent over the total cost of cultivation. Rural women and tribal communities play a significant role as principal collectors of medicinal plants from the wild. With approximately 90 per cent of women labour engaged in collecting herbal raw drugs from nearby areas indicating the importance of women's empowerment in medicinal plant cultivation cannot be ignored. The marketing of medicinal plants has not developed as of other agricultural crops, so there is a need to focus on strengthening the value chain, the establishment of strong market integration and market intelligence system pertaining to medicinal plants.

Introduction

The agriculture sector in India predominantly focuses on cultivating major crops such as cereals, pulses, oilseeds, horticulture, and cash crops to meet the country's increasing demand. However, this intensified cultivation of these crops has raised significant concerns, including land fertility degradation, groundwater table depletion, habitat loss, and adverse changes in climate

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conditions. To address these pressing issues, the Indian agriculture sector is pivoting towards diversification into underutilised areas like forests, deserts, and coastal regions, while also integrating short-duration non-agricultural crops into existing systems, aiming to augment farmers' income while promoting sustainability and resilience in agricultural practices.

Traditionally, the Indian agriculture has primarily focused on growing food and horticultural crops such as cereals, pulses, oilseeds, fruits and vegetables and cash crops like cotton, sugarcane etc. Due to the rising demand for crops amidst land and water scarcity, habitat loss, and extreme weather, Indian agriculture must diversified towards underutilised areas like forests, deserts, and coastal regions, while also integrating short-duration non-agricultural crops into existing systems to boost farmers' income.[1]

Medicinal and Aromatic crops, which are in high demand in both domestic and global herbal markets, present an ideal resource that can seamlessly integrate into technology-driven agricultural efforts (Rao, 2012).Medicinal plants are categorised as provisioning ecosystem services with direct economic value. Still, the global trade of medicinal plants depends on the extensive collection from the wild. Medicinal plants are classified as ecosystem services that directly contribute to the economy. During the climate crisis, farmers face many challenges while producing traditional crops in areas where there's water stress and ongoing drought. However, medicinal crops stand out well in such conditions because they can handle stress, adapt to dry climates, and make good profits (Mirzoieva *et al.* 2021).The sector involving Medicinal and Aromatic Plants (MAPs) is garnering attention from policymakers due to their significant contributions to individual health and well-being. In 2000, the Indian government established the National Medicinal Plants Board (NMPB) to encourage the cultivation of the medicinal plant sector in India.

The use of plants for medicinal and healthcare purposes stands out as the foremost application of plants, encompassing a wide range of species targeted for their therapeutic properties. Medicinal plants serve as the primary constituents of medicines in many traditional healing systems and have also inspired the development of numerous pharmaceutical drugs. (Anand *et al*. 2019). The global herbal medicine industry was valued at approximately US$ 110.2 billion in 2020 (WHO, 2019), with Asia contributing 42 per cent of the market share (Saiyem *et al*. 2022). Many countries possess a rich heritage of utilising medicinal plants for various purposes such as medications, dietary supplements, beauty products, and fragrances, all aimed at enhancing health and overall well-being.

According to the International Union for Conservation of Nature and the World Wildlife Fund, approximately 50,000 to 80,000 flowering plant species are utilised for medicinal purposes globally, with around 15,000 species facing extinction due to over-harvesting and habitat destruction and 20 per cent of their wild resources already depleted due to rising human population and plant consumption (Chen *et al*., 2016). India, renowned for its diverse traditional healing practices, boasts a plethora of systems such as Ayurveda, Siddha, Tribal Medicine, and Folk remedies, which have been employed since ancient times. These

systems cater to a wide range of health needs, from tackling intricate diseases like cancer to fulfilling basic primary healthcare requirements. Herbs play a vital role in broadening and sustaining the availability of pharmaceutical resources, providing an alternative approach to traditional medicine.

Approximately 95 per cent of the medicinal plants utilised in the Indian herbal industry are sourced from the wild area; it is clear that only 5 per cent of medicinal plant are being cultivated at a commercial level. Despite the presence of approximately 8,000 medicinal plant species utilised by diverse communities across various ecosystems in India, only around 10 per cent of these species are actively traded (Chandra, 2016).

The COVID-19 pandemic has contributed to an increased global need for goods and services derived from biodiversity, particularly phytopharmaceuticals (Pathak and Agrawal, 2023). In addition to pharmaceutical advantages, this sector can serve as a significant bio-resource, particularly for the Northeast region of India.[2] So increasing the demand across these industries can ensure the increase in wealth of the cultivator of MAPs.

Importance of Medicinal and Aromatic Plants

Access to Healthcare

For millennia, humans have relied on medicinal plants for treatment, prevention, and therapeutic needs. Traditional Medicine in regions like China, India, and Africa has utilised numerous plants with proven therapeutic benefits, meeting Western standards (Akinyemi *et al.*, 2018). Across South Asia, the use of medicinal plants for family healthcare and nutrition has deep roots in cultural traditions, spanning back thousands of years (Fransworth and Soejarto, 1991). This familiarity with plant-based remedies, cultivation methods, and processing technologies is widely accepted. These plants also form the basis for family-oriented health and livelihood enterprises, with traditional healers often operating healthcare systems based on medicinal plants for their livelihoods.

Examples like Arya Vaidya Sala (AVS) in Kerala demonstrate the integration of business and traditional medicine. Such initiatives not only bolster social cohesion but also preserve traditional medical knowledge while offering entrepreneurial opportunities for unemployed youth and rural communities. They contribute to nutraceuticals, herbal pharmaceuticals, and herbal cosmetics, meeting modern healthcare needs. highlighting their ongoing relevance in today's healthcare systems (Raju and Das, 2024).

Protection of Traditional Knowledge

The urgent need to safeguard the vanishing traditional knowledge associated with medicinal plants, particularly prevalent in the hills, cannot be overstated (Negi *et al.*, 2019). The Himalayan Mountains, revered as the source of Ayurveda, harbour a wealth of indigenous health traditions practised by local communities for centuries. By placing value on this knowledge and promoting subsistence-oriented applications of medicinal plants, significant employment opportunities can be generated in rural areas (Karki *et al.*, 2003). Even with current efforts to convert traditional medical knowledge into economic ventures, the enterprise-based approach has the potential to

create numerous jobs, especially in resource-constrained regions facing educational limitations, mountain-specific challenges, and insufficient infrastructure for medicinal plant trade and commercial activities.

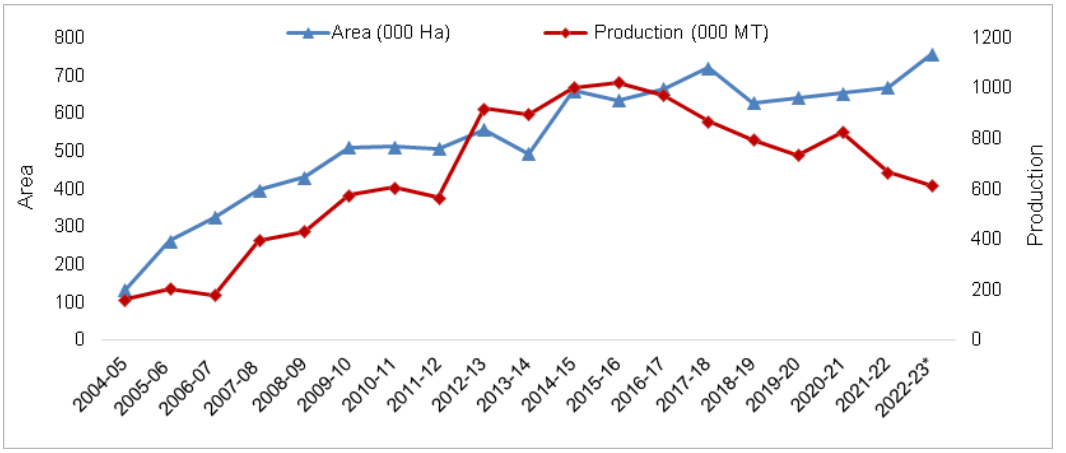
Environmental Conservation

The global demand for herbal medications, natural health supplements, and secondary metabolites derived from medicinal plants is on the rise, leading to a rapid expansion in their usage worldwide (Cole *et al.*, 2007). The shift away from chemical and unsustainable forest products has created a demand for quality, certified, and organic herbal goods, making medicinal plants a promising alternative. With their abundant presence as trees, shrubs, grasses, and vines in South Asia, medicinal plants offer eco-friendly solutions for various domestic and industrial needs. Their emergence in global markets as environmentally friendly botanical products presents a new opportunity for promoting community-based conservation efforts and incentivising the preservation of forest ecosystems.

Economic Viability of Select Medicinal Plants Cultivation in India

According to Goraya and Ved (2017), more than 70 per cent of commercial herbal species are sourced from wild. MAP sector has significant potential to boost the agricultural economy and doubling farmers' income. There is huge scope for the medicinal plant sector as its market is expected to increase to 14 billion by 2026 from 4.2 billion in 2019 with a CAGR of 38.5 per cent.[3] With the escalating demand for MAPs, there has been a discernible upward trajectory in MAP production recorded over time, exhibiting a compound annual growth rate (CAGR) of 7.78 per cent. This surge is evident from the increase in MAP production from 159 thousand tons in 2004-05 to 612 thousand tons in 2022-23. Similarly, a parallel increase in the area under cultivation of MAPs has been observed, with a growth rate of 10.23 per cent during the same period, rising from 131 thousand hectares to 756 thousand hectares.

Figure 1: Area and Production of Medicinal and Aromatic Plants in India from 2004-05 to 2022-23.



Source: Ministry of Agriculture and Farmers Welfare, GoI, 2024.

*denote data used for 2022-23 is the third advanced estimate

Though there has been an upward trend observed in production, the medicinal and aromatic plant sector continues to face challenges, notably related to production and marketing issues. The cultivation practices of MAPs vary across different agro-ecological regions, resulting in varying crop economics from one location to another, influenced by farmers' practices during production (Goraya and Ved, 2017). Therefore, it is crucial to know the profitability of medicinal plants and their associated costs.

Shedding light on the cost-return cycle of medicinal plants in relation to farmers' agricultural practices is essential. In the case of yield,good agricultural practices (GAP) of any crop or medicinal plant undertaken in any location may differ from the other region depending on the agro-ecological factors and practices involved (Singh and Baldi, 2018). Medicinal plants exhibit resilience in adverse soil conditions and require minimal maintenance, resulting in reduced cultivation costs and increased profitability concurrently.[4] Table 1 reveals that economic viability of major medicinal plants cultivated in India demonstrates promising returns, surpassing those of many cereal crops. Notably, crops such as Shatavari (Asparagus racemosus), Sarpagandha (Rauvolfia serpentine), and Ghrit Kumari (Aloe vera) yield profits exceeding 55 per cent over the total cost of production. For instance, Shatavari (Asparagus racemosus) offers a profit of Rs. 4.25 lakh per hectare, followed by Sarpagandha (Rauvolfia serpentine) with Rs. 1.90 lakh and Ghrit Kumari (Aloe vera) with Rs. 1.40 lakh, respectively. These profits significantly outpace those of staple cereal crops like paddy and wheat, which yield returns of Rs. 14,308 per hectare and Rs. 20003 per hectare, respectively (Pal *et al*., 2019; Verma *et al*., 2016). The initiative led by 'Solidaridad' (International civil society organisation) to reclaim the sustainability thorough MAPS cultivations has yielded significant financial benefits in ashwagandha compared to wheat. Cultivating ashwagandha on 0.63 acres of land generated profits equivalent to those from cultivating wheat on 2.2 acres of land, showcasing a remarkable disparity in profitability.[5] However, Satavari (Asparagus racemosus), Bramhi (Bacopa monnieri) and Tulssi (Ocimum sanctum) also fetch good return with Rs. 4.86 lakh and 0.41 lakh per hactar, respectively (DMAPR, 2021).

This comparative analysis underscores the economic viability and potential profitability of cultivating medicinal plants in India. It can be concluded that diversification with MAPs can raise the income and standard of small-holding farmers in India. As such, it highlights the importance of further exploration and investment in the medicinal plant sector to enhance agricultural sustainability and economic prosperity. To encourage the cultivation of medicinal plants in India, the Ministry of Ayush launched the National Ayush Mission (NAM), a Centrally Sponsored Scheme. Under the Medicinal Plants component of NAM, subsidies of 30 per cent, 50 per cent, and 75 per cent of cultivation costs are provided for 140 prioritised medicinal plants. Unfortunately, many farmers are unaware of the government support schemes available to them, which poses a significant challenge to the growth of the agricultural sector(Panda and Giri, 2024).

Table 1: Cost and Return for Major Medicinal and Aromatic Plants Cultivation in India

Sr. No	Botanical Name	Common Name	Yield (ha)	Cost of cultivation (Rs./ha)	Gross return (Rs./ha)	Net Profit (Rs./ha)
1	*Mentha arvensis*	Menthol mint	125-150 Kg (Essential oil)	35000-40000	122000	80000
2	*Mentha piperita*	Pipermint	80-100 kg	120000	40000	80000
3	*Artemisia annua*	Sweet wormwood	25-30 q	25000	85000	60000
4	*Withaniasomnifera*	Ashwagandha	6-8 q	35000-40000	100000-110000	60000
5	*Andrographis paniculata*	Kalmegh	30-35 Kg	35000	90000	55000
6	*Asparagus racemosus*	Shatawar	50-60 q	200000	625000	425000
7	*Rauvolfia serpentina*	Sarpgandha	15-20 q	110000	300000	190000
8	*Aloe vera*	Ghrit Kumari	500 q	110000	250000	140000
9	*Vetiveriazizanioides*	Khus	20-25 q	100000	308000	20000
10	*Ocimumbasilicum*	Indian basil	100-120 kg	25000	60000-70000	40000
11	*Cymbopogon flexuosus*	Lemongrass	250-250 Kg (Essential oil)	180000	60000	120000

Source: National Academy of Agricultural Sciences, 2016.

Employment Generating Potential of MAPs Sector

The cultivation of medicinal plants presents a myriad of employment avenues spanning agriculture, research and development, and marketing sectors. In India, farmers have the opportunity to establish small-scale enterprises centered around the cultivation and trade of medicinal herbs, thereby enhancing livelihoods for themselves and their communities. In China, educational institutions are nurturing self-employment by offering research programs focused on medicinal plants. Similarly, in the United States, the pharmaceutical industry is harnessing the potential of medicinal herbs to develop innovative pharmaceutical compounds, fostering employment opportunities in fields such as science, pharmaceuticals, medicine, and entrepreneurship. Overall, the cultivation of medicinal plants does not only enhance economic prosperity but also foster job creation and catalyses growth across diverse industries.

Medicinal and Aromatic Plants (MAPs) and other livelihoods based on biodiversity have the potential to alleviate poverty and to promote social equity and

gender balance when managed effectively.[6] The collection of medicinal plants and other non-timber forest products serves as a crucial source of income for forest dwellers, particularly women and tribal communities, supporting their subsistence needs. Due to inadequate agricultural production on tribal lands, women predominantly undertake the collection of leaves, fruits, and flowers, while men focus on roots and other high-value parts found in remote forest areas. This supplementary occupation, predominantly carried out during activities like gathering firewood and fodder, is labour-intensive and largely dominated by women and children. Rural women and tribal communities play a significant role as principal collectors of medicinal plants from the wild, with approximately 90 per cent women engaged in collecting herbal raw drugs from nearby areas. This highlights the importance of women's empowerment in medicinal plant cultivation, as it provides them with economic opportunities and contributes to their livelihoods and community wellbeing.

The traditional utilsation of herbal remedies throughout India offers substantial nutritional, economic, and ecological advantages to rural communities. Many ethnic groups or tribes possess extensive traditional knowledge about the efficacy of herbal medicines, acquired through experience and passed down through oral traditions as closely guarded secrets within certain families. However, there is an urgent need for documenting traditional and indigenous knowledge regarding the medicinal significance of herbal plants. Consequently, the establishment of herbal gardens has emerged as a crucial element in rural and medical tourism, attracting visitors from across India and abroad, thereby creating employment opportunities and enhancing the tourism sector.

Contract Farming Approach

Inadequate cultivation techniques and unsustainable harvesting practices in herbal production lead to a decline in the quality and uniformity of medicinal and aromatic plants (MAPs) due to their impact on medicinal properties. Gularia and Gupta (2020) highlighted the significant challenge of expensive planting material and the scarcity of healthy planting material in the context of medicinal and aromatic plants. Offering comprehensive guidance and access to necessary resources for cultivators or producers can alleviate these challenges. Contract farming emerges as a crucial strategy to ensure the production of high-quality and sufficient quantities of medicinal plants. Through this agreement, farmers commit to cultivating medicinal plants in accordance with specific quantity and quality standards set by the company. This ensures that the company receives supplies of the desired quality, which can be challenging with plants sourced from forests/wild. In return, farmers receive a predetermined compensation from the company upon delivery, providing them with a stable income and efficient market access.

The contract includes provisions for inputs such as planting materials, fertilizers, financial incentives, technological support, and expert training. By participating in contract farming, farmers can significantly increase their yields, enabling them to sell directly to ayurvedic companies without relying on intermediaries. Certain contract farming models in India have significantly contributed to agricultural transformation and to address existing challenges. PepsiCo's contract farming model for

tomatoes in Punjab has revolutionised agricultural practices, offering novel opportunities, enhancing productivity, and incorporating modern technologies. This success has led to a significant overhaul of Punjab's agricultural sector, ensuring prompt and adequate delivery of high-quality produce to PepsiCo's processing facilities. In Coimbatore, an innovative contract farming approach known as the Integrated Cotton Cultivation model has been introduced, providing cotton farmers with assurance through partnership contracts and yielding considerable positive outcomes. Additionally, the effective backward integration between Ugar Sugar Works Ltd and farmers in Northern Karnataka, particularly in Belgaum, stands out. Confronted with soil salinity issues arising from intensive sugarcane cultivation, the company launched awareness campaigns among farmers regarding alternative crops suitable for saline soils, with barley being a notable example (Manzoor, 2014).

Similar to above initiatives for the agricultural commodities, various medicinal plants, including Aloe Vera, Tulsi, Ashwagandha, and Shatavari, are cultivated under contract farming system. Companies such as Aayur Medica, Himalaya Herbal Healthcare, Dabur India Ltd, and Patanjali Ayurved extend support to cultivators in this endeavour. In response to the exploitation of farmers and the deterioration of herb quality due to numerous marketing intermediaries, the Kerala State Medicinal Plant Board has undertaken a pioneering initiative. The Oushadhavanam model, characterised by a tripartite contract farming agreement, has been effectively executed by a cooperative labour society in Thrissur district, Kerala. This collaborative model involves private enterprises, non-governmental organisations, and farmers working together to manage and oversee the contract farming system (Jones and Vijayan, 2012). Sometimes this contact farming leads to excessive collection of medicine species. The reasons behind this are both collectors and contractors prioritise short-term profit over sustainability, focusing on maximising collection volume within one-year contracts. Collectors, often in financial need, aim to repay loans from contractors by harvesting as much as possible regardless of long-term consequences. Anther challenge is emerging in this agrrement is buyers backing out at the last minute, leaving the supplier (farmer) in a difficult situation (Singh, 2006). To safeguard the interests of both farmers and companies, it is imperative for the government to establish a regulatory framework within the legal domain to address and mitigate these issues effectively.

Key Challenge for the Sector: Inefficient Marketing

Regrettably, there is a dearth of information regarding the economic value of Medicinal and Aromatic Plants (MAPs), whether they are cultivated or gathered from the wild, as a significant portion of the trade takes place through informal channels (Spina *et al.*, 2023). The medicinal plants' supply chain is extensive, with primary producers relying on intermediaries (Kala *et al.*, 2006). The Agricultural Finance Corporation Ltd[7] conducted a comprehensive study on the trade dynamics of medicinal and aromatic plants across various agro-climatic zones in the country.

The study highlighted that the various stakeholders were present in the supply chain wild/cultivator, middlemen, trader,

wholesaler, primary processing unit, retailer and manufacturer. The highest volume of trade occurred in the western zone of India at the wholesale stage followed by the southern zone at the manufacturing level. The involvement of numerous intermediaries in the marketing of medicinal plants has significantly increased the complexity of plant trade. Cultivators facing challenges to access the market directly, leads to significant post-harvest losses and low returns. The marketing channels for medicinal plant parts lack organisation and regulation, resulting in rampant illegal trade, unfair practices, revenue-sharing issues, and inadequate quality control measures. The key concerns in this sector include insufficient information on raw material sources, actual trade volumes, and data related to toxicity and heavy metal content.

Currently, there exists a deficiency in comprehensive value-chain mapping and analysis within the Medicinal and Aromatic Plants (MAPs) trade sector in the country. The inventory and registration of stakeholders including MAPs growers, seed/planting material providers, traders, processors, exporters, and service providers are notably insufficient. A value chain delineates the entirety of steps essential for bringing a product from its producer to the end consumer, encompassing diverse phases such as production, transformation, processing, and trading activities. Employing value chain analysis serves as a crucial methodology for understanding the intricate market dynamics associated with a particular product, scrutinizing all facets from production to consumption (Kanji *et al.*, 2005). It's crucial to strengthen the value chain of medicinal and aromatic plants in the country to promote economic growth.[8] This necessitates concerted efforts towards bolstering stakeholder engagement, improving infrastructure, and implementing strategic interventions aimed at optimising the efficiency and effectiveness of the MAPs value chain.

Many studies on medicinal plants have focused more on biological aspects rather than marketing considerations. However, ensuring both fair prices for producers and accessibility for consumers at reasonable rates necessitates a highly efficient product market. In India, research into market efficiency for medicinal plants has been comparatively limited compared to other agricultural products, highlighting the significance of enhancing efforts in this area to bolster the marketing of medicinal plants. In India, there exists a notable absence of comprehensive information regarding the market integration of medicinal plants. While certain studies have explored the export potential of herbs, there remains a dearth of information regarding the domestic market integration of medicinal plants. This deficiency is particularly evident in the lack of price information for medicinal commodities. Therefore, there is a clear imperative to conduct research aimed at elucidating the pricing dynamics and market integration of medicinal plants within the domestic sphere. This presents a significant opportunity for further exploration and analysis in the realm of medicinal plant economics and market dynamics.

Conclusion

In contemporary times, medicinal plants are witnessing heightened demand within the healthcare sector due to their cost-effectiveness and efficacy in mitigating the adverse effects associated with conventional pharmaceuticals. Simultaneously, this sector has emerged

as an alternative avenue for diversifying agriculture, offering farmers returns that surpass those from traditional agricultural produce. Moreover, it holds the potential to generate employment opportunities, particularly contributing to the empowerment of women. The active participation of diverse research institutions and universities is essential to expand extension programs focused on the cultivation of Medicinal and Aromatic Plants (MAPs). This collaboration will provide producers with direct scientific support for their crops. While significant attention has been directed towards supporting production in the medicinal plant sector through governmental and institutional assistance, there remains a noticeable lack of development in marketing strategies. It is imperative to prioritise the enhancement of marketing efficiency through initiatives such as market integration and value chain mapping. The medicinal and aromatic plant sector holds the potential to contribute to the government's vision of doubling farming income through the adoption of contract and cooperative farming approaches.

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Accessibility of Health Care: A Study on Government Ayurveda Hospital in Kerala

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Abstract: Ayurveda is one of the oldest traditional systems of health care in the world. Kerala acts as the hub of Ayurvedic treatment. The present study aims to analyse the access to Healthcare in Government Ayurvedic hospitals in Kerala. For that, an Ayurveda hospital was selected, and the 40 respondents were chosen from the inpatients there. Wilcoxon signed-rank test and Multiple regression analysis weredone. The study found that all the respondents are easily accessible to the Ayurveda hospital in terms of availability, acceptability and affordability.

Keywords: Ayurveda, Health care, Access to care, Affordability, Accessibility, Acceptability, Accommodation and Availability

Introduction

Ayurveda "science of life", is one of the world's oldest healing systems, originating in India with roots dating back over 5,000 years. This system is an integral part of India's cultural and medicinal heritage. It emphasises a holistic approach to health and well-being, focusing on the balance between mind, body, and spirit to prevent and treat illnesses (Jaiswal and Williams, 2017). Ayurveda incorporates a range of practices, including dietary recommendations, herbal medicine, yoga, massage, and meditation. Ayurvedic medicine is based on the concept of balancing the three fundamental bodily humoursor doshas: Vata, Pitta and Kapha. Each person has a unique combination of these doshas, which determines their constitution and health needs. Ayurvedic practitioners diagnose imbalances in these doshas and provide personalised treatment plans to restore harmony (Sloan, 1977).

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Kerala's historical commitment to Ayurveda not only enhances the health and well-being of the state but also promotes global awareness and appreciation of this timeless science (Variar, 1985). Through its rich resources, skilled practitioners, and holistic approach, Kerala attracts individuals seeking natural and holistic healing from all corners of the world. Ayurveda has become a major attraction for the Kerala tourism industry, with the state actively promoting it as a key component of medical tourism in the international market (Padmasani and Remya, 2015). Tourists from around the world visit Kerala to experience authentic Ayurvedic treatments and therapies, contributing to the state's economy and global recognition of Ayurveda.

In Kerala, Ayurveda practice has been preserved in its purest form and seamlessly integrated into daily life. This integration, rooted in the region's social and cultural traditions, has resulted in significant health benefits for the population.[1] For the people of Kerala, ayurveda is an integral part of their heritage, influencing their daily routines, food habits, cultural practices and health care. This paper aims to study access to health care and the role of Ayurveda hospitals in Kerala as a healthcare provider. Access to health infrastructure at all levels i.e primary, secondary and tertiary being a primary factor determining health outcomes of a state the role of existing hospitals is crucial. Given that traditional medicine hospitals enjoy the same policy priorities in Kerala at par with modern medicine hospitals. This paper, based on a field survey of 40 inpatients, highlights some key outcomes related to the affordability, availability, accessibility, and acceptability of these services.

Research Methodology

The present study was based on the primary source of data and was collected from 40 inpatients of the Government Ayurveda Hospital in Kottarakkara, who were admitted for treatment for more than 7 days. The Government Ayurveda Hospital in Kottarakkara has been operating for over 70 years under the Indian System of Medicine (ISM). This hospital has a capacity of 10 beds, staffed by three main doctors and three permanent nurses. However, there are no permanent therapists; instead, two therapists are employed on a contract basis. The survey was conducted from June 15 to August 30, 2023. Data was collected using a structured questionnaire that assessed various dimensions of access to care.

The accessibility,affordability, acceptability, availability,and accommodation are the dependent variables, however age, gender, income, health care expenditure, availability of prescribed medicine, doctors, and nurses, therapist, travel time, travel cost, satisfaction, preference, waiting time to get admission, etc are the independent variables for the study. Each variablewas assessed using a 5-point Likert scaleand. The various statistical tools were employed such as descriptive statistics, the Wilcoxon signed-rank test and multiple regression analysis. Wilcoxon signed-rank test was used to compare the median. The factors influencing access to care were studied by using a multiple regression model.

Result and Discussion

Conceptual Framework

Equitable access to health services is vital for universal health coverage, especially for vulnerable and marginalised populations, yet many people face

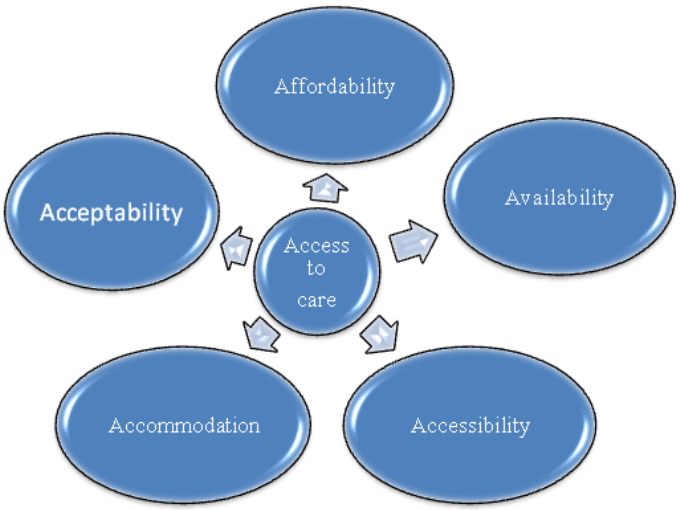
economic, geographic, epidemiological, or cultural barriers that prevent them from receiving necessary care. Access to healthcare refers to the prompt utilisation of personal health services aimed at achieving optimal health outcomes. It involves entering the healthcare system, obtaining services at care sites where necessary treatments are provided, and identifying providers who can meet patients' needs and build a relationship grounded in mutual communication and trust. Figure 1 represents the concept of "Access to care" and identifies five key dimensions that is, affordability, availability, accessibility, accommodation, and acceptability.

Affordability refers to the economic aspect of accessing healthcare. It encompasses the cost of healthcare services and whether individuals can afford them without financial hardship. Availability focuses on the presence of healthcare resources and services. It includes the number of healthcare facilities, the availability of medical staff, and the adequacy of medical equipment and supplies. Accessibility deals with the ease with which individuals can physically reach healthcare services (Zhang *et al.*, 2021). It considers factors like the location of healthcare facilities, transportation options, and travel time required to access care. Accommodation refers to how well healthcare services are organised to meet the needs of patients. It includes aspects such as clinic hours, appointment systems, and the flexibility of healthcare services to accommodate patients' schedules. Acceptability involves the cultural and social factors that influence whether individuals feel comfortable and willing to seek healthcare services. It includes patients' perceptions of healthcare providers, the cultural competence of the staff, and the alignment of healthcare practices with patients' values and beliefs (Minutha, 2014).

Socio-demographic Profile of Respondents

The socio-demographic profile of respondents provides a comprehensive understanding of the characteristics of patients in government ayurvedic

Figure 1: Conceptual Framework of Access to Care



Source: Zhang,et.al., (2021).

hospitals which is essential for interpreting the results and drawing meaningful conclusions. Below is an interpretation of the key socio-demographic aspects depicted in Figure 2:

The largest age group in the sample is 36-50 years, comprising 32.5 per cent of the respondents. This is followed by the 51-65 years age group at 25.0 per cent. The younger age group (21-35 years) and the older age group (above 66 years) are relatively smaller, at 22.5 per cent and 20.0 per cent respectively. The respondents consist of more female respondents (60.0 per cent) compared to male respondents (40.0 per cent). The employment status of the respondents shows that an equal proportion are employed and self-employed (35.0 per cent each).The remaining 30.0 per cent are unemployed. The income distribution indicates that the largest segment of respondents (27.5 per cent) falls in the category of Rs 20001- Rs 40000. A significant proportion (20.0 per cent) earns above Rs 75000/annum, suggesting a diverse economic background among the respondents. Half of the respondents (50.0 per cent) spend between Rs.2001-Rs.5000 on healthcare monthly, indicating moderate healthcare expenditure. A significant portion (20.0 per cent) spends below Rs.2000, while the remaining respondents are divided between higher expenditure brackets.

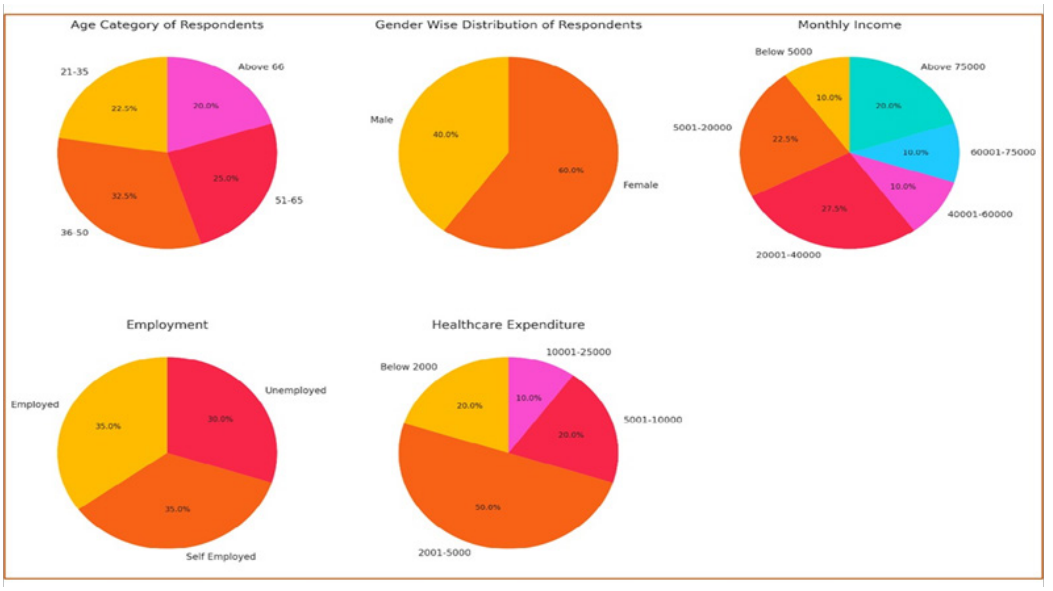
Access to Care

Access to care refers to the ability of individuals to obtain needed health services in a timely manner. It encompasses various dimensions, including the availability of healthcare facilities, affordability of services, acceptability and accessibility and the ease with which individuals can reach and utilise these services (Penchansky and Thomas, 1981). Ensuring equitable access to care is essential for improving health outcomes and reducing disparities within populations.

Affordability

Table 1 illustrates the affordability of health care using two dimensions viz., monthly income The mean monthly

Figure 2: Socio-demographic Profile of Respondent



Sources: Author's computation.

income of households is 3.475 with a median of 3 (Rs.31000). The standard deviation of 1.66 indicates moderate variability in household incomes. The Wilcox on signed-rank test for the monthly income results in a Z-value of 1 and a p-value of less than 0.01, suggesting that the median income of the sample is significantly different from the median of the population at the 5 per cent significance level. The mean monthly expenditure on healthcare is 2.15, with a median 2. The magnitude of standard deviation is low (0.84) suggests that healthcare expenditures are relatively consistent across the households and the median of monthly expenditure on healthcare is 2(Rs. 4000). The Wilcox on test shows that the median values of samples are significantly different from the population. Thus, it shows that the household income and healthcare expenditure are affordable to access healthcare facilities.

Availability

Table 2 shows the availability of health care services to the patients. The difference between getting prescribed medicine in a pharmacy, the availability of doctors and nurses and sufficient therapists are available in the government Ayurveda hospital. The mean score for the availability of prescribed medicines in pharmacies is 4.38. The median score of 4.00 aligns closely with the mean, indicating a skew towards high availability across the sample. The standard deviation of 0.58 indicates relatively low variability prescribed medicines in pharmacies.

The mean score for the availability of doctors and nurses is 4.60, indicating very high availability. The median score of 3.00 suggests a disparity in responses, with some patients reporting lower availability. The standard deviation of 0.632 suggests moderate variability in the availability of doctors and nurses, reflecting that while many respondents report high availability, there are notable instances of lower availability. The mean score for the availability of sufficient therapists is 2.82, indicating a relatively low average availability. However, the median score of 5.00 suggests a significant discrepancy, with some respondents experiencing high availability while others report much lower availability. The standard deviation of

Table 1: Affordability of Healthcare

Affordability	**N**	**Mean**	**Median**	**SD**	**Wilcoxon signed- rank test** **Z(p-value)**
Monthly income of households	40	3.475	3	1.66	1(<0.01)
Monthly expenditure on healthcare	40	2.1538	2	0.844	1 (<0.01)
level of significance is 0.05 If p value is <0.001, the results are statistically significant.					

Source: Author's computation.

1.107 indicates high variability, reflecting significant differences in respondents' experiences regarding the availability of therapists. This inconsistency might point to differences in availability. So, the Wilcox on signed-rank Test is used for analysing the difference.

The hypothesis is the unavailability of prescribed medicines in pharmacy, doctors and nurses and therapists in the studied hospital on the basis of median. Table 2 reveals that for prescribed medicines in pharmacy the p-value is 0.08 and Z-value is 1.75, indicating that the hypothesis is rejected and there is a shortage of prescribed medicines in a pharmacy. Again in the case of the Availability of medical staff and the therapist, the Wilcox on singed-rank test came out to be significant indicating that the availability of both in sufficient amount. Patients might have adequate access to medical consultations but may face challenges in accessing prescribed medicines in the pharmacy. There are enough doctors and nurses available in the hospital to meet the patients' needs, but the availability of prescribed medicines is not enough.

Accommodation

The access to the accommodation in the hospital under study was considered with the help of different dimensions such as preference to get admission in the hospital, waiting time to get admission and waiting time to get a room to admit. The results of the Wilcox on signed-rank test for all the dimensions were presented in Table 3.

The mean score for the preference to get admission is 4.60 with a median score of 5.00 suggesting that most respondents gave the highest possible preference rating, confirming strong preference consistency across the respondents (Table 4). The mean score for waiting time to get admission is 3.95 with a median score of 4.00 aligns with the mean, indicating a general consensus among respondents regarding the waiting time. The mean and median scores for the waiting time for a room after admission are both 4.00, indicating that respondents typically rate this aspect of accommodation quite positively. The standard deviation of 1.109 suggests moderate variability.

An examination of the table reveals the inpatient preferences for the hospital's

Table 2: Availability of Healthcare

Availability	N	Mean	Median	SD	Wilcoxon signed-rank test Z (p-value)
Availability of prescribed medicines in pharmacy	40	4.38	4.00	0.586	-1.75 (0.08)
Availability of Doctors and Nurses	40	4.60	3.00	0.632	-3.25 (0.001)
Availability of Sufficient Therapists	40	2.82	5.00	1.107	-2.90 (0.004)
Level of significance is 0.05 If p value is <0.001, the results are statistically significant.					

Source: Author's computation.

Table 3: Accommodation of Healthcare

Accommodation	N	Mean	Median	SD	Wilcoxon signed- rank test Z (p-value)
Preference to get admission in Ayurveda Hospital	40	4.60	5.00	0.632	-3.56 (0.0004)
How long do you have to wait to get admission	40	3.95	4.00	1.197	-2.45 (0.014)
How long you wait to get a room	40	4.0	4.00	1.109	-1.68 (0.09)
Level of significance is 0.05 If p value is <0.001, the results are statistically significant.					

Source: Author's computation.

accommodation facilities assessed using the Wilcoxon signed-rank test. The test results were significant for the preference to get admission and the waiting time to be admitted, indicating a clear preference for an Ayurveda treatment and a shorter-than-expected waiting time for admission. However, the same test was found to be non-significant for the waiting time to obtain a room, suggesting that patients experience prolonged wait times to secure a room after admission. This inconsistency might be influenced by factors such as bed availability, hospital capacity, and patient flow.

Accessibility

The accessibility to healthcare in the hospital under study was considered using different dimensions such as mode of transpiration, transpiration cost and travel time. The results of the Wilcox on signed- rank test for all the dimensions were presented in Table 4.

According to Table 4, the mean score for the mode of transportation to reach the hospital is 1.03 with a median score of 1.00, suggesting that most respondents use a similar mode of transportation, possibly indicating high accessibility. The mean score for transportation cost is 3.98, with a median score of 4.00 indicating that the cost of transportation is relatively high for the respondents. The mean score for travel time is 1.38, with a median score of 1.00,suggesting that, on average, respondents have relatively short travel times to reach the hospital. This indicates that most respondents experience very short travel times.

A perusal of Table 4 also reveals the results of Wilcox on signed- rank test for different dimensions. It was hypothesised that the mode of transpiration is different, with lower transpiration cost and higher travel time. The results of the Wilcox on ranked test were found to be significant on the basis of p and z values, rejecting the null hypothesis for all the dimensions. So it is clear that patients are using the same mode of transpiration to reach the hospital and the travel time to reach the hospital was also found to be lower, but transpiration cost was found higher. This suggests that the mode of transportation used by respondents is reliably easy and accessible. Despite the lack of a public transportation system, people can

Table 4: Accessibility of Healthcare

Accessibility	N	Mean	Median	SD	Wilcoxon signed-rank test Z (p-value)
Mode of transportation to reach the hospital	40	1.03	1.00	0.158	-5.55 (<0.001)
Transportation cost	40	3.98	4.00	0.862	-3.75 (<0.001)
Travel time	40	1.38	1.00	0.493	-4.25 (<0.001)
Level of significance is 0.05 If p value is <0.001, the results are statistically significant					

Source: Author's computation.

easily access this government hospital by relying on private transportation. So the transportation cost is higher.

Acceptability

The acceptability of Ayurveda was considered with the help of different dimension such as behaviour of providers (Andersen, 1995), preference of healthcare, and mainly the satisfaction level in healthcare. The results of Wilcoxon signed-rank test for all the dimensions were presented in Table 5.

The mean and median values of providers' behaviour indicate that patients perceive providers' behaviour as being below average. This variability could be due to personal experiences, the effectiveness of treatments, or individual health conditions. There is a moderate level of variability in these perceptions, some patients may have had positive experiences, and many others have not. The mean and median indicate a high preference for Ayurveda, but the higher standard deviation suggests a range of opinions. The high mean and median values, along with a lower standard deviation, suggest that patients are generally very satisfied with ayurvedic treatments. The mean score for satisfaction with Ayurveda is 1.38, suggesting low satisfaction levels among the respondents. The median score 2.00 indicates a discrepancy, with some respondents rating their satisfaction

Table 5: Acceptability of Healthcare

Acceptability	N	Mean	Median	SD	Wilcoxon signed- rank test Z (p-value)
Providers behaviour	40	2.18	2.00	0.914	-4.21 (<0.001)
Preference to Ayurveda	40	3.63	3.50	1.079	-5.32 (<0.001)
Satisfaction to Ayurveda	40	4.35	5.00	0.802	-3.11 (0.002)
Level of significance is 0.05 If p value is <0.001, the results are statistically significant					

Source: Author's computation.

higher. The standard deviation of 0.493 shows moderate variability, reflecting differences in satisfaction levels with Ayurveda among the respondents.

The results of Wilcox on signed-rank test (Table 5) is found to be significant for all three dimensions of acceptability of health care. It indicates that the expected median value is different from the sample median. It shows that customer behaviours, preference to ayurveda and satisfaction are the vital dimensions for the acceptability of health care.

Determinants of Access to Healthcare

The multiple regression analysis was performed to investigate the different factors influencing access to health care. Independent variables were considered are availability of prescribed medicine, doctors, and nurses, therapist, travel time, travel cost, satisfaction, preference, waiting time to get admission, etc are the independent variables. Table 6 presents the analysis of access to care using multiple regression analysis.

The multiple correlation coefficients (R) indicate the strength of the relationship between the observed values and the values predicted by the model. An R value of 0.560 suggests a moderate positive correlation between the predictors and Access to Care. The R-Square indicates 31.4 per cent of the variability in access to Care is explained by the predictors. This suggests that the model has moderate explanatory power. The adjusted R-square value for predictors in the model provides a more accurate measure of the model's explanatory power. An Adjusted R Square of 0.544 indicates that, after adjusting for the number of predictors, 54.4 per cent of the variance in access to care is explained by the model. This indicates that the regression model has good explanatory power. This suggests that the model is strong, reliable and effective in capturing the key factors influencing access to care.

A perusal of Table7 shows how different factors affect access to healthcare, it provides detailed information on the individual predictors included in the regression model and their relationship with the dependent variable, access to care. Unstandardised coefficients represent the change in the dependent variable for a one-unit change in the predictor variable, holding all other predictors constant. Standardised and can be used to compare the relative strength of the effect of each predictor on the dependent variable. Tolerance Indicates how much of the variance in a predictor is not explained by the other predictors. A value close to 1 indicates low multicollinearity. Variance

Table 6: Result of Multiple Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.560[a]	0.314	0.544	0.9777
a. Predictors: (Constant), travel time, Availability of Doctors and Nurses, providers character, Availability of Prescribed medicine in Pharmacy, how long do you have to wait get admission, satisfaction to ayurveda, mode of transport, preference to get admission, transportation cost, preference to ayurveda, how long do you wait to get after admission room				

Source: Author's computation.

Inflation Factor indicates the level of multicollinearity. A VIF value greater than 10 suggests high multicollinearity. It is clearly visualised that the wait to get admission and wait to get a room has shown high multicollinearity.

The coefficient values indicate that variables, such as availability of prescribed medicine in a pharmacy, availability of medicinal staff, preference to get admission, preference to Ayurveda and satisfaction from Ayurveda were found

Table 8: Coefficients of Multiple Regression Analysis

Variable		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
		B	St. Error	Beta			Tolerance	VIF
1	(Constant)	1.027	2.161		0.475	0.001		
	Availability of Prescribed medicine in Pharmacy	0.085	0.435	0.050	0.194	0.004	0.606	1.650
	Availability of Doctors and Nurses	0.026	0.161	0.028	0.159	0.002	0.435	2.296
	preference to get admission	-0.062	0.325	-0.039	-.191	0.002	0.579	1.727
	how long do you have to wait get admission	-1.219	0.822	-1.459	-1.483	0.006	0.075	39.465
	how long do you wait to get room after admission	1.616	0.902	1.793	1.791	0.084	0.024	40.881
	mode of transportation	-0.306	0.177	-0.338	-1.726	0.095	0.638	1.567
	transportation cost	-0.181	0.243	-0.156	-0.743	0.064	0.557	1.796
	providers behaviour	-0.066	0.143	-0.078	-0.464	0.647	0.857	1.167
	preference to ayurveda	0.211	0.201	0.228	1.049	0.003	0.520	1.923
	satisfaction to ayurveda	0.01	0.251	0.000	0.002	0.001	0.606	1.650
	travel time	0.137	0.316	0.075	0.434	0.667	0.812	1.231
a. Dependent Variable: Access to care								

Source: Author's computation.

to be having a significant impact on access to health care however rest of the variable shown the non-significant impact. Among the significant variables, all the variables have shown a positive influence on access to health care.

The findings indicate that greater availability of prescribed medicines enhances healthcare accessibility, ensuring that necessary treatments are more readily accessible to patients. Similarly, the presence of adequate medical staff, including doctors and nurses, facilitates easier access to healthcare services by providing timely and comprehensive care. Moreover, patients' preferences regarding hospital admission and their inclination towards ayurvedic medicine are highlighted as influential factors. Those preferring Ayurveda tend to seek healthcare more readily within that system, thereby enhancing their access to appropriate treatments aligned with their preferences. Furthermore, higher satisfaction levels with ayurvedic treatments positively correlate with improved healthcare access. This suggests that patient satisfaction not only reflects the quality of care received but also impacts their likelihood of seeking and accessing healthcare services in the future.

In summary, these findings underscore the critical role of medicine availability, medical staff, patient preferences, and satisfaction levels in shaping access to healthcare services. Addressing these factors effectively can contribute significantly to enhancing healthcare accessibility and quality of care delivery.

Conclusion

Health system not only determines but also implements various health policies, delivers healthcare and manages health services for a specific geographical area. It is an integrated service allotted to each district for the welfare of the people (Chatterjee, 2014). There is a problem faced by the healthcare system is accessibility. Lack of easiness of access to care the preference may be changed. The area of each health centre has been delineated to provide better service to the people and also to utilise the health services in an efficient way (Minutha, 2014). This study suggests that healthcare administrators should focus on increasing the number of therapists. The efficiency of the admission process needs to be improved to ensure there are no delays for patients seeking admission. To enhance the interactions of healthcare providers there is a need to boost preference for and satisfaction with ayurvedic treatments. It is to be ensure that ayurvedic treatments continue to meet patient expectations to maintain high satisfaction levels. Focus should be on training and development programmes to improve the consistency and quality of providers' interactions with patients. There is need to identify and address the concerns of patients who have lower preferences to understand and mitigate barriers to choosing Ayurveda. Maintain the high standards of ayurvedic care that lead to high satisfaction and continue to monitor and address any areas of lower satisfaction. Efforts should be made to improve the acceptability of healthcare services by addressing cultural and social barriers. Additionally, reducing transportation costs and ensuring more uniform travel times can enhance overall accessibility. Although inpatients have shown a high preference for and satisfaction with healthcare services, they face challenges in areas such as the availability of prescribed medicines in

the pharmacy and extended waiting time. Addressing these challenges could further enhance patient satisfaction and access to care in this traditional healthcare System.

Endnote

[1] Thirteenth five-year plan (2017-2022), Governement of Kerala. Avaliable at https://spb.kerala.gov.in/sites/default/files/inline-files/1.15AYUSH per cent20Final per cent20draft.pdf

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Improving Quality Standards of Ayush Services: Role of Accreditation of Ayurveda Courses

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Abstract : As Ayurveda aims to gain recognition and acceptance worldwide, the demand for qualified Ayurvedic practitioners and educators is on the rise. Ayurveda education plays a crucial role in nurturing the next generation of healers and advocates who are dedicated to promoting health, wellness, and vitality for individuals and communities around the world. Both short-term and degree courses are now being offered in Ayurveda. As interest in short-term Ayurveda grows, the need for standardised education becomes paramount. Accreditation, quality and continuous improvement have therefore become an intrinsic part of the discourse and activities of such courses. This paper studies the role of accreditation to institutions offering short-term Ayurveda courses with the objective of meeting specific standards, enhancing the credibility of the education provided.

Keywords: Accreditation, Ayurveda courses, Quality, ATAB.

Introduction

The world of Ayurveda, a traditional system of medicine with roots in ancient India, has witnessed a surge in popularity globally. This is attributed to the holistic and individualised treatment therapy and stress on maintaining health as a whole. Ayurveda education stands at the intersection of ancient wisdom and modern science, offering a holistic approach to healthcare that encompasses the physical, mental, and spiritual aspects of well-being. Rooted in the ancient texts of India, Ayurveda is a system of medicine that emphasises the balance between body, mind, and consciousness to prevent illness and promote health.

The education and practice of Ayurveda are deeply ingrained in the cultural heritage of India, where it has been practiced for thousands of years. Over the decades, Ayurveda has garnered significant attention worldwide for its holistic principles and natural healing methods (Chauhan *et al*, 2015).

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As a result, educational institutions dedicated to Ayurveda have emerged not only in India but also in various countries across the globe.

Ayurveda education encompasses a comprehensive curriculum that delves into various aspects of human physiology, pathology, diagnosis, and treatment modalities. Students pursuing Ayurveda education undergo rigorous training in the principles of Ayurveda philosophy, anatomy, medicine, nutrition, lifestyle management, and therapeutic techniques such as massage, and meditation etc.

The journey of Ayurveda education typically begins with foundational studies, where students gain a deep understanding of the fundamental principles of Ayurveda, including the concept of doshas (biological energies), dhatus (tissues), and malas (waste products) (Kizhakkeveettil *et al*, 2024). They learn how these elements interact to maintain balance and harmony within the body and mind, as well as how imbalances can lead to disease. As students progress through their education, they delve into specialised areas of Ayurvedic practice, such as Panchakarma (a detoxification and rejuvenation therapy), Ayurvedic pharmacology, diagnostic techniques including pulse diagnosis (Nadi Pariksha), and personalised treatment protocols tailored to individual constitution and imbalances.

Practical training is an integral component of Ayurveda education, allowing students to apply theoretical knowledge in clinical settings under the supervision of experienced practitioners. Through internships and clinical rotations, students gain hands-on experience in assessing patients, formulating treatment plans, and implementing Ayurvedic therapies to restore health and well-being.

Ayurveda education is not limited to traditional classroom settings; it embraces experiential learning and apprenticeship models that foster a deep connection with nature and the healing arts. Students often engage in experiential learning activities such as herb cultivation, preparation of Ayurvedic medicines, and participation in traditional healing rituals and ceremonies.

In addition to formal education programmes, Ayurveda education also encompasses continuing education and professional development opportunities for practitioners seeking to deepen their knowledge and enhance their skills. Various training programme provide avenues for ongoing learning and collaboration within the Ayurvedic community.

The global interest in Ayurveda education reflects a growing recognition of the need for integrative and holistic approaches to healthcare that complement conventional medical practices. Ayurveda offers a unique perspective on health and healing that emphasises prevention, self-care, and the natural harmony of body, mind, and spirit.

As Ayurveda continues to gain recognition and acceptance worldwide, the demand for qualified Ayurvedic practitioners and educators is on the rise. Ayurveda education plays a crucial role in nurturing the next generation of healers and advocates who are dedicated to promoting health, wellness, and vitality for individuals and communities around the world. As interest in short-term Ayurveda grows, the need for standardised education becomes paramount.

Accreditation is a structured process where a recognized authority evaluates and certifies that a healthcare organization/ Training Institute/ Training Provider meets specific standards as per the guidelines. It is a formal recognition granted to educational institutions, healthcare organisations or professional entities by an authoritative body. Understanding why accreditation matters in the realm of Ayurveda education is crucial. An exploration of the accreditation process for Ayurveda courses, sheds light on its significance, accreditation criteria, and the resultant impact on the quality of Ayurveda education system. Accreditation, quality, and continuous improvement have become essential elements in the practices and discussions within health services (Frank *et al*, 2020).

Since the 1970s, healthcare accreditation programs and accrediting organizations have emerged and evolved globally. The International Society for Quality in Health Care (ISQua)[1], is the global level institute having 70 members countries across the world. While involvement in accreditation varies globally, it has become a recognized and significant component of quality improvement activities in many regions. However, the evidence base for accreditation is considered incomplete, and there have been numerous calls in the literature for further research into this area.

The rise in national emphasis on enhancing patient outcomes, safety, and care quality has prompted stakeholders, policymakers, and healthcare provider organizations to implement standardized procedures for evaluating healthcare institutions. Accreditation and certification have been proposed as interventions to ensure patient safety and quality healthcare. Guidelines recommend accreditation but are cautious about the evidence, judged as inconclusive.. Despite limited evidence of its efficiency or effectiveness, the drive for accreditation persists.

Healthcare quality is a relatively new concept in public health within. The idea of enforcing quality care in the medical field began in the early 1900s with the "Medical Audit" in the United States (Sharma, 2012). By 1918, it evolved into the "Hospital Standardization Programme" and eventually became "Quality Assurance activities," aimed at delivering relevant and effective medical care according to standards. This transformation was spearheaded by the formation of the "Joint Commission on Accreditation of Hospitals," later renamed in 1960 as the "Joint Commission on Accreditation of Health Care Organizations." (Sharma, 2012). The International Organisation for Standardisation (ISO) was established in 1946, the ISO 9000 series of standards have generated maximum interest worldwide.[2] In India, the National Accreditation Board for Hospitals and Healthcare Providers (NABH), was established as part of the Quality Council of India (QCI), to implement an accreditation program for healthcare organisations. Another step has been taken up by forming Ayurveda Training and Accreditation Board (ATAB) to set accreditation standards for Ayurveda courses through the Rashtriya Ayurveda Vidyapeeth.[3]

Quality Standards for Ayush in India

To ensure the quality of Ayush sector, several standards have been established by various agencies in India. These include the Bureau of Indian Standards (BIS), NABH standards, Ayush Indian Public Health Standards (IPHS), and the

Ayurveda Training Accreditation Board (ATAB). IPHS is specifically designed for public health services, while ATAB set accreditation standards for Ayurveda courses.

Role of Accreditation in Ayurveda Courses

Presently, various short-term courses on Ayurveda are being offered across India and globally, often with limited or inadequate information. These courses whether conducted online or in-person, lack standardised content and suffer from a lack of uniformity in curriculum and instructor competency. This variability stems from the non-formal nature of these courses, which tailor their content to the specific needs of individual institutions. Additionally, there is uncertainty regarding the qualifications and expertise of Ayurveda course content developers.

Accreditation serves as a crucial mechanism to mitigate uncertainty surrounding the information disseminated to students. Accreditation ensures that institutions offering short-term Ayurveda courses meet specific standards, enhancing the credibility of the education provided. Accreditation serves several purposes including ensuring standardised Ayurveda education which is the pillar of strengthening the quality education in Ayurveda. It stimulates the quality improvement process in an organisation to provide state of the art services as per their scope, enhances the transparency and accountability of the institution and improves the capacity of the Standardisation of Ayurveda courses promoting continuous improvement and facilitating the transfer of credit to the students. It instils confidence in students, practitioners, and the broader healthcare community, fostering a sense of assurance in the quality of Ayurveda training. Additionally, it aligns with the transfer of ancient Ayurveda knowledge through traditional principles of Ayurveda while adapting to contemporary educational requirements.

Major Initiatives for Accreditation of Ayurveda Courses

Delving into the regulatory landscape, the key body responsible for accrediting short-term Ayurveda courses is the Ayurveda Training Accreditation Board (ATAB). ATAB is established by the Ministry of Ayush in December 2019 through Gazette notification, it caters to the short-term Ayurveda courses which are not regulated by NCISM Act 2020 (Earlier IMCC Act 1970) or any other regulatory body. Rashtriya Ayurveda Vidyapeeth (RAV), an autonomous organisation of has been notified as a nodal accrediting agency for various Ayurveda professional courses operating in India as well as various countries. It provides a framework that ensures adherence to established standards:

- **Accreditation:** It is a formal process by which a recognised body, assesses and recognises that a health care organisation/ Training Institute/ Training Provider meets applicable pre-determined and published standards (Aboshaiqah *et al*, 2016).
- **Certification of Professionals:** It is a programme for certification of Ayurveda professionals through standard Ayurveda courses being developed by ATAB under RAV from time to time.
- **Endorsement of Ayurveda Practitioners:** For tangible planning and

designing the roadmap for promotion and propagation of Ayurveda on the global platform, the registered Ayurveda practitioners from India and working abroad will be endorsed for recognition as per their qualifications. It would help to measure outreach of Ayurveda across the world and promote its recognition and disseminate authentic inputs in Ayurveda amongst practicing communities abroad.

Standards under Ayurveda Training Accreditation Board (ATAB) Scheme

The scheme has been designed with the following features:

1. **Voluntary Participation:** The ATAB accreditation process is voluntary for institutions offering Ayurveda training courses. Institutions have the autonomy to undergo accreditation to affirm the quality and standardisation of their programmes.
2. **Accreditation for Non-Regulated Courses:** ATAB specialises in accrediting Ayurveda courses not covered by the National Commission for Indian System of Medicine (NCISM) Act 2020 or any other regulatory body. This ensures recognition for informal Ayurveda education programmes based on their quality and standards.
3. **Global Standardization:** ATAB strives to standardise informal Ayurveda education globally. Through standardised criteria and evaluation methods, the board ensures that accredited courses meet consistent quality standards, regardless of their location.
4. **Career Advantages:** Accredited Ayurveda courses under ATAB may offer students credits beneficial for their future careers. Accreditation enhances the credibility and value of education, potentially leading to opportunities for professional skill development.

Examining the criteria for accrediting Ayurveda courses reveals the benchmarks that institutions must meet. It is a voluntary Scheme and institutions are free to adopt among different levels of enlisting under ATAB. Institutions can adopt/ design/ follow the pattern as per their customisation based on the requirements of ATAB. However, the following pre-requisites may apply for accreditation of Ayurveda courses:

1. Only Ayurveda courses which do not fall under the purview of the NCISM Act 2020 (earlier IMCC Act 1970) or by any regulatory body globally, are eligible for accreditation under ATAB.
2. The courses offered by the Training provider should contain Ayurveda course material only. No other course material should be attached or added to the Ayurveda course from any of the other systems of medicine.
3. The course offered should be already being operated through physical/ virtual/hybrid mode by the training provider and at least one batch of students must have completed the course.
4. The training institute/ organisation must be registered with the local authority as per the law and regulations of the concerned government.

ATAB has developed a set of standards in 10 chapters and 44 objective elements, which the training provider has to comply and adhere to, for grant of accreditation. The objective element is a measurable component of a standard to achieve. The first five chapters are focused on institutions. Another five chapters focused on the delivery of education. The details of ATAB standards are as per Table 1:

Impact of Ayurveda Accreditations

The impact of the above initiations is likely to have a significant impact on Ayurveda services sector, more specifically the educational quality and service providers' quality.

a. **Impact on Quality Education:** Accreditation plays a transformative role in shaping the quality of education by establishing rigorous standards and assessment criteria. The impact of accreditation on the quality of education is multifaceted and profound. Firstly, it serves as a powerful mechanism for ensuring that educational institutions adhere to recognised benchmarks of excellence, fostering a culture of continuous improvement. The accreditation process involves comprehensive evaluations of curriculum, faculty qualifications, student support services, and overall institutional effectiveness, thereby promoting accountability and transparency.

Furthermore, accreditation contributes significantly to the enhancement of teaching and learning practices. Institutions seeking accreditation are compelled to engage in self-assessment and undergo external evaluations, leading to the identification of strengths and areas for improvement. This process encourages faculty and administrators to implement innovative teaching methodologies, integrate cutting-edge technologies, and refine curricular offerings to meet evolving educational needs. Consequently, students enrolled in accredited institutions are more likely to receive a well-rounded and contemporary education that prepares them for the demands of a dynamic and competitive global workforce.

In addition, the impact of accreditation extends beyond individual institutions to benefit broader educational systems. As accredited institutions consistently uphold high standards, they contribute to the overall elevation of educational quality within a region or country. This, in turn, enhances the reputation and competitiveness of the educational system on a global scale, attracting students, faculty, and research opportunities. In summary, the impact of accreditation on the quality of

Table 1: ATAB Standards

S. No.	Name of Chapter	No. of Criteria
1	Vision, Mission and Objectives (VMO)	6
2	Organisation, Governance and Administration (OGA)	6
3	Financial Resources (FR)	1
4	Human Resources (HR)	7
5	Infrastructure Resources (IR)	3
6	Student Services (SS)	3
7	Course Curriculum (CC)	6
8	Evaluation and Assessment (EA)	6
9	Learning Resources (LR)	2
10	Quality Improvement (QI)	4
	Total	**44**

Source: Author compilation.

education is transformative, fostering a culture of continuous improvement, innovation, and global competitiveness.

b. Institutional Benefits: Accreditation brings about a myriad of institutional benefits that extend far beyond a mere stamp of approval. One of the primary advantages is the enhancement of institutional credibility and reputation. Accredited institutions undergo rigorous evaluations, meeting established standards of quality and excellence. This validation instils confidence in stakeholders, including students, parents, faculty, and employers, fostering a positive perception that contributes to increased enrolment, collaboration opportunities, and alumni support.

Moreover, accreditation serves as a catalyst for institutional improvement. The self-assessment and external evaluation processes inherent in accreditation prompt institutions to critically examine their operations, curriculum, and support services. This introspection facilitates the identification of strengths and weaknesses, driving a commitment to continuous enhancement. Accredited institutions often implement strategic initiatives to address identified areas for improvement, leading to a more responsive and adaptive educational environment.

Accreditation also opens doors to financial benefits. Many funding sources, both public and private, prioritise support for accredited institutions, recognising them as reliable stewards of educational resources. This financial backing enables institutions to invest in infrastructure, faculty development, and advanced technologies, further enhancing the overall quality of education.

c. Continuous Improvement: This focuses on Continuous quality improvement for the educational Institutions. It encourages:

i. **Self-assessment**- Assessing the compliance of the standards of ATAB on their own to look for the development of necessary policies for standardisation and uniformity in service delivery in terms of education.

ii. **Self-quality improvement**- Taking necessary steps to fill the lacunae and to improve or upgrade the quality of delivery of Ayurveda education.

iii. **Institutional planning**- Setting up the goals to achieve excellence in the conduction of Ayurveda courses and to meet the required standards and benchmarks.

There are eleven key challenges that need to be overcome to achieve accreditation. These include, lack of core team, inconsistent processes, unsafe environment, improper documentation, untrained staff for emergency preparedness, lack of acceptance of data–driven approach, partial implementation of laws and regulations, inconsistent work, misconception that accreditation doesn't have benefits, criticising audit team and inadequate inventory control measures. Addressing these problems besides others like maintenance of facility/ equipment, medication management, and nursing care, is essential and may help the hospital/institution secure accreditation within a year. This can be achieved through the commitment of all stakeholders, including management, team members, and outsourced employees. A focused approach is required:

- to identify the baseline level of health care delivery of all departments;

- to indicate the gaps/compliances in terms of structure, process and outcome; and
- to suggest alterations in structural designs, process of the facilities to meet the requirement.

Conclusion

Accreditation is one of the key instruments towards standardisation. This standardisation facilitates comparability and transparency, allowing prospective students, employers, and other institutions to make informed decisions about the value and legitimacy of qualifications. On a global scale, accreditation is crucial for promoting mobility and exchange of talent. Courses accredited by reputable accrediting bodies are more likely to be recognised and respected internationally, enhancing portability and acceptance across borders. This recognition not only benefits individuals seeking education or credits abroad but also contributes to the harmonisation of educational standards on a global scale. Moreover, accreditation fosters continuous improvement by encouraging institutions to meet evolving educational and professional requirements. It acts as a catalyst for the enhancement of educational quality, international collaboration, and the overall advancement of knowledge and skills in an interconnected world.

Accrediting short-term Ayurveda courses is an dynamic process that significantly influences the future of Ayurvedic education. As the traditional meets the contemporary, navigating the accreditation landscape ensures that Ayurveda maintains its authenticity while evolving to meet the demands of a modern healthcare environment. Embracing accreditation is a regulatory requirement as well as commitment to quality, excellence and a step towards ensuring the continued growth and acceptance of Ayurveda on a global scale.

Endnotes

1 https://asq.org/quality-resources/iso-9000

2 https://ravdelhi.nic.in/atab

3 https://www.bis.gov.in/

4 https://nhm.gov.in/images/pdf/guidelines/iphs/iphs-revised-guidlines-2022/01

5 Ministry of Health and family Welfare. 2022. Indian Public Health Standards Indian Public Health Standards: Sub District Hospital and District Hospital. https://nhm.gov.in/images/pdf/guidelines/iphs/iphs-revised-guidlines-2022/01-SDH_DH_IPHS_Guidelines-2022.pdf

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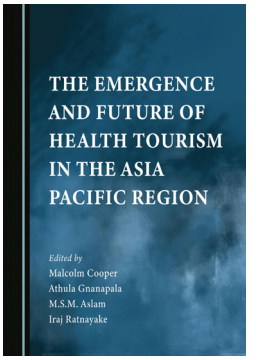
The Emergence and Future of Health Tourism in the Asia Pacific Region



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Namrata Pathak*

Namrata Pathak

Over the last decade as international travel increased, the nature of tourism has also witnessed a considerable change. No longer is the objective of travel strictly compartmentalised between leisure or medical. The broad concept of wellness now drives tourism products motivated by evolving shifts towards preventive health as against curative healthcare. Fitness, spirituality and nutrition often witness integration in tourism pursuits. The nature of medical tourism itself has transformed as location based alternate therapies and experiences gets added to medical solutions as well as to post surgical recovery process.

The book seeks to study health related tourism in the Asia Pacific region. There are thirteen chapters. The subject of the chapters attempt to study sociology and economics of healthcare tourism. This includes modern healthcare, indigenous systems of medicine, allied wellness industries such as the spa industry, quality and standards in drug manufacturing industries and even sociology of exorcism and catharsis as part traditional healing practices.

At the outset, it may be noted that Asia Pacific is a region that adjoins the western pacific region and countries/territories of Australasia, East Asia and South East Asia are often included. The editors have pointed out the main focus is South Asia although

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networks in other regions have been explored. However the book has majorly focussed on countries of India and Sri Lanka. Several chapters are dedicated only to these countries with few exceptions.

The first two chapters of the book manage to bring out the varied facets of healthcare tourism economy while debating on the definition of the industry. Others explore the geographies studied. While India is popular for all components of health tourism including medical and alternative therapies of Ayurveda and Yoga and even cosmetic procedures, countries like Sri Lanka are emerging as destinations for Ayurveda therapies. Other destinations like Thailand are focussed on medical tourism. Each destination comes with its unique advantage and challenge. India's medical treatments surpass most medical tourist destinations even in neighbouring countries like Thailand and Malaysia in cost-effectiveness. Lesser waiting time for critical surgeries, brand building by Indian hospital chains and doctors abroad have contributed preference for India as destination. An interesting case study highlights factors driving Middle East's preference for India as a medical tourism destination. It includes, among others, goodwill of Indian doctors, brand recognition of hospital chains in Middle East establishing hospitals in India and preference for non-Saudi male doctors by female patients.

Chapters on Sri Lanka are however challenged by lack of contextual linkage with the subject of health tourism. Are indigenous health practices such as healing rituals and devil dancing (as studied in two chapters) being showcased as prospects for health tourism in Sri Lanka? Are international health tourists seeking these practices and is Sri Lanka emerging as a hub for international tourism? These questions remain unanswered.

While the growth rates and revenues of health tourism appear optimistic, the lack of exact estimations of the size and contribution to economies of Asia Pacific countries has been highlighted. This also brings out the irrelevance of the research of the authors. Qualitative research however brings out some facets. The contrasting impact on domestic health care while meeting the demand of international tourists has been a challenge. Authors point to the aggravating inequality in health systems brought about by price increase and diversion of services away from low income citizens. At the same time, healthcare tourism impacts on national and global migration of health workers to host countries that cause harm to health worker training, health worker distribution and local provision of care in source and destination countries. For example, as mentioned in a chapter, specialist healthcare worker shortage persists to varying degrees in south East Asia as demands from foreign patients increase. This undermines health equity within countries with fewer health workers being trained to address needs of local population and public system.

Few chapters offer interesting insights. A review of 45 journal papers on demand for complementary medicine highlights age and gender as key variables among demographic factors where the system is highly popular among elderly and women. Education is cited as key social factor while income and employment are economic

factors with a positive relationship being cited with demand for traditional and complementary medicines.

Similarly, a chapter on hot spring destinations of Oita and Fukoka prefectures in Japan as possible wellness tourism destinations brings out the possibility of health tourism consisting of two dimensions. This includes medical tourism with curative aspects and wellness tourism for health improvement thereafter. The chapter brings out interesting insights on role of effective coordination between stakeholders for successful health tourism strategies, language and culture as possible barriers and differing perceptions on medical services between country of origin and destination. The authors Hori *et al* have brought out in detail the Japan's carefully drafted policies and programmes for healthcare tourism activities. This chapter is recommended for understanding of the emerging nature of medical and wellness tourism in Japan.

Overall, the book offers few interesting chapters which will enrich the readers' knowledge on emerging discussions regarding the concept of health tourism.

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Use's' in '-ise' '-isation' words; e.g., 'civilise', 'organisation'. Use British spellings rather than American spellings. Thus, 'labour' not 'labor'. Use figures (rather than word) for quantities and exact measurements including percentages (2 per cent, 3 km, 36 years old, etc.). In general descriptions, numbers below 10 should be spelt out in words. Use fuller forms for numbers and dates— for example 1980-88, pp. 200-202 and pp. 178-84. Specific dates should be cited in the form June 2, 2004. Decades and centuries may be spelt out, for example 'the eighties', 'the twentieth century', etc.

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