



Ayurvedic Research And Methodology: Present Scenario And Fields To Explore

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Abstract

Ayurveda is a life science that uses customized medicine and a holistic approach to wellness. Comprising thousands of medical principles and hypotheses, it is one of the oldest medical systems. It's interesting to note that many chronic illnesses that are incurable in modern medicine, like cancer, diabetes, rheumatoid arthritis, and asthma, can be successfully treated with *Ayurveda*. Unfortunately, this priceless inheritance from our forefathers is disappearing because different views lack empirical confirmation. Therefore, more breakthroughs in research methods are required for *Ayurveda's* global recognition and acceptability, as evidence-based research is crucial. The current study covers a wide range of research areas, including *Ayurvedic* literature, basic, medicinal, and clinical research. The article's primary goal is to enhance *Ayurvedic* research technique, with a particular emphasis on foundational research. Young scholars will undoubtedly be inspired to work on a variety of research topics for the advancement and promotion of *Ayurveda* by this endeavour.

Key words: Individualized medicine, *Ayurvedic* research and methodology

Introduction

The oldest continuously practiced Indian medical system, *Ayurveda*, has a strong philosophical and empirical foundation and is still one of the living traditions. It is a life science that uses individualized treatment and a holistic approach to health. It is recognized as a comprehensive medical system that addressed mental, emotional, ethical, physical, and spiritual well-being.^[1] *Ayurveda* refers to itself as self-healing science because it believes that every cell is fundamentally an essential expression of pure intellect.^[2] This Indian traditional medical approach places equal importance on the use of herbal remedies in addition to the self-healing notion. The World Health Organization estimates that between 70 and 80 percent of the world's population gets their medical care from nonconventional sources, mostly herbal sources.^[3] The absence of effective treatments for many chronic conditions, the high cost of new medications, microbial resistance, developing disorders, and increased adverse effects of synthetic therapies are the main reasons behind the public's interest in complementary and alternative medicine.^[4] Even though *Ayurvedic* medicine is quite beneficial, many significant *Ayurvedic* medications' correct mechanisms of action, pharmacology, pharmacokinetics, and pharmacovigilance are still poorly understood. Furthermore, a lack of proof makes a thorough understanding of *Ayurveda's* fundamental beliefs unacceptable from a scientific standpoint. Validating the fundamental ideas and medications employed in the *ayurvedic* medical system with the use of cutting-edge research methods is

critically important in the present era, when the Western medical system has nearly achieved the pinnacle of medical practice thanks to validated research and sophisticated methodologies. Thus, improvements in the current research approach are essential to the growth of *Ayurveda*.

What are the reasons behind lagging of Ayurveda system of medicine?

Ayurvedic medicine is unquestionably more successful than allopathic treatment for the majority of chronic illnesses. Nonetheless, *Ayurveda's* appeal is somewhat diminished since most people in the world prefer modern medicine, which can treat illnesses more quickly than *Ayurvedic* remedies. These days, a growing number of people are looking for alternatives due to the high cost of healthcare, awareness of the toxicity of allopathic treatments, and resulting dread. The goal of *Ayurvedic* scientists should be to improve *Ayurveda's* key competencies while upholding its essential principles, as opposed to competing with and leaning towards Western medicine.^[5] The following are some significant factors that have led to the *Ayurvedic* method's decline.

- Despite their enthusiasm, young *Ayurvedic* scholars are unsure on what direction they want to see *Ayurveda* take. Furthermore, they are unsure of how best to publicize their insightful *Ayurvedic* study findings.
- *Ayurvedic* research infrastructure is well-established in only a handful of organizations. To perform cutting edge and excellent research in *Ayurveda*, one needs to have experience with modern technologies and be a knowledgeable researcher.
- Biomedical scientists are neither cooperative or willing, and they frequently have biases and are overly sceptical.
- Every year, over a thousand postgraduate students studying *Ayurveda* graduate and join the workforce. Only a small percentage of them decide to pursue careers as *Ayurvedic* researchers.

These are a few of the key issues that *Ayurvedic* research should be paying close attention to in order to progress.

Enhancement of the Methodology

A research problem can be solved through the methodical gathering, analysis, and interpretation of data using research methodology. As an established traditional medicinal system, *Ayurveda* does not require validation from the Indian government, populace, or scientific community. Basic study on *Ayurveda* is required to update and revitalize the immense knowledge that has been eroded over time, especially during British administration. The basic understanding of *Ayurveda* will undoubtedly be improved by this kind of research, benefiting both Indians and foreigners. This will ensure that *Ayurveda* is used to the fullest extent possible and given the opportunity to become widely known. Research is a process that converts data into information, information into knowledge, and knowledge into wisdom. In the present scenario, *Ayurvedic* researchers are failing in this aspect as these are unable to disseminate the knowledge gained from the exercises.^[6]

The brilliant history of *Ayurvedic* research technique is founded on the examination instruments called Pareeksha, which are derived from the philosophical term *Pramaana*, which means "evidence."^[7] These examination instruments are (i) the literature or authoritative testimonies (*Aptopadesha*), (ii) the inference (*Anumana*), and (iii) the direct observation (*Pratyaksha*). These three fundamental instruments are also used in modern research, and their usefulness has been increased by the employment of cutting-edge scientific and technology techniques. These research techniques aim to establish the underlying concepts that constitute the basis of the *Ayurvedic* system through fundamental study. High-quality studies combining cutting-edge scientific methods with the fundamentals of *Ayurveda* can increase our understanding of medicine today.

It is now necessary to define *Ayurveda*, including whether it refers to the use of herbs alone or to the use of herbs along with other treatment modalities in accordance with *Ayurvedic* principles. The planning and adoption of the study approach should be appropriate. When choosing an *Ayurvedic* research approach, the following considerations should be examined.^[8]

- It is important to consider the fundamental distinctions between *Ayurveda* and contemporary science when developing research methodologies.
- The primary focus needs to be on the traditional *Ayurvedic* approach.
- The fundamental ideas of *Ayurveda*, such as *Prakriti*, *Agni*, *Dhatu*, *Srotas*, *Rasayana*, *Shatkriyakala*, *Agnibala*, *Ojabala*, *Manobala*, etc., should be the basis for research procedures.

- Experts in both biomedical areas and *Ayurveda* should participate in the research project.
- Research utilizing a holistic and integrated approach that takes into account the body, mind, and spirit should be taken into consideration.
- Prior to beginning clinical trials, it is imperative to have thorough understanding of the disease's diagnosis, the materials to be utilized, the procedure to be followed, and the precise dose form. When receiving treatment, the tailored medicine approach should be used.

Every assignment or project involves a different research methodology in the growth of *Ayurveda*. There are five main categories into which the key research areas can be separated: literary, fundamental, drug, pharmaceutical, and clinical research. While there isn't a single best way to conduct research, there are techniques and abilities that can help efforts be more productive and successful.

Encouragement of basic *Ayurvedic* research

The domains of pathology, *Ayurvedic* physiology, clinical and fundamental pharmacology, and pharmaceuticals all require basic research. Both basic and practical knowledge have emphasized the central idea of *Srotovijnana* (knowledge of channels) as a primary matrix of *Ayurvedic* biology.^[9]

The goal of *Ayurvedic* basic research is to investigate the scientific possibilities and innovations in *Ayurvedic* basic principles. The basic research involves substituting scientific thinking bolstered by data and facts for religion and conjecture. The investigation's goals in the basic study are divided into four categories: the human body (*Purusha*), the illness (*Vyadhi*), the medication (*Aushadha*), and the appropriate moment to act (*Kriyakala*).^[10]

Validation of *Ayurvedic* drugs with reverse pharmacology

Reversing ordinary clinic practice to laboratory examination for appropriate validation of a conventional medicinal system is known as "reverse pharmacology."^[11] Using solid preclinical and clinical research to create novel drug candidates or formulations based on information currently known in traditional medicine is an intriguing and significant scientific method.^[12]

Furthermore, by using the reverse pharmacology approach, the failure rates of the herbs or their formulations that are already mentioned in *Ayurveda's* clinical implications can be decreased. This method provides a chance to look for novel synergistic pairings, enhancements in bioavailability, and creative approaches that can be highly influential in the creation of new drugs. Piperine has been the subject of several prior investigations, which have demonstrated that its combination increases the bioavailability of synthetic medications such rifampicin, propranolol, and theophylline.^[13]

Evidence-based advantages of conventional methods

Numerous studies have demonstrated that *Ayurveda* is more effective than Western medicine, particularly for treating chronic conditions. However, more sophisticated scientific methods are required to confirm these findings. *Ayurveda* suggests using copper pots to purify water because they have been scientifically shown to have antibacterial properties against major bacteria that cause diarrhoea, such as *Salmonella enterica typhi*, *Shigella flexneri*, enterotoxigenic *Escherichia coli*, enteropathogenic *E. coli*, and *Vibrio cholerae*.^[1,14]

Furthermore, numerous *Rasayanas* and *Ayurvedic* formulations have been clinically verified in a variety of in vivo settings. In this regard, the *Ayurvedic rasayana Amalaki* and the organometallic derivative of mercury *Rasa Sindoor* have been found to be beneficial for *Drosophila melanogaster's* longevity, development, fertility, stress tolerance, and heterogeneous nuclear ribonucleoprotein levels.^[15]

Clinical trial revalidation

Revalidating clinical studies on *Ayurvedic* medicines is necessary to improve scientific techniques, drug dosage forms, and side effects in order to discover more effective treatment modalities. In order to provide a basis for a meaningful comparison of not only classical *Ayurveda* but also other traditional medicinal systems with allopathic treatment in ways that are acceptable to Western standards, it is imperative to develop a method that allows placebo controls for altering and customizing therapies. This method also demonstrates the feasibility

of double-blind, placebo-controlled, randomized research to compare traditional Ayurvedic and allopathic medicine. Larger trials are obviously necessary and feasible.^[16] For worldwide acceptance, the *Ayurvedic* clinical trials must adhere to the consolidated criteria of reporting trails statement.

Discussion and Conclusion

The rising cost of healthcare is a current issue that many individuals are finding difficult to pay. Drug-based medications are problematic in Western nations due to their severe adverse effects and pricey in economically underdeveloped nations like India. Drugs should not be the first line of treatment; instead, natural healing modalities like *Ayurveda* should be used first. *Panchkarma*, one of the Ayurvedic therapeutic modalities, is capable of curing disease before it shows symptoms. Despite having all of the aforementioned benefits, *Ayurveda* is still falling behind due to subpar study technique and frequently lacking scientific backing.

Ayurvedic methodological standards need a great deal of professional labor on the part of academicians and practitioners, who need to be motivated and have the requisite expertise for the job. If not, *Ayurveda* will eventually become just another medical history and lose its unique character. While research takes time, there is no other way to get around the obstacles in the way of *Ayurvedic* medicine's global dissemination. *Ayurvedic* medicine can be improved by working in a planned, methodical, and impartial manner. However, it is also a harsh reality that contemporary research has not yielded many benefits for *Ayurveda*, as the majority of these studies employ *Ayurveda* as a means of advancing contemporary bioscience. Therefore, developing cutting-edge research methods is crucial to the validation of both the principles and practices of *Ayurveda*.

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