



ISSN 2456-3110

Vol 8 · Issue 7

July 2023

Journal of
**Ayurveda and Integrated
Medical Sciences**

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



Maharshi Charaka
Ayurveda

Indexed

Cognitive Psychology: As essential & integrated part of medical education w.s.r. to *Yukti Pramana* in Ayurveda

Kshirabdhi Tanaya Rautaray¹, Shiva Prasad Mohanty², Raka Jain³

¹Professor, Dept of Samhita, Siddhanta & Sanskrit, Monark Ayurveda Medical College and Hospital, Ahmedabad, Gujarat, India.

²Associate Professor, Department of Dravyaguna Vigyana, Monark Ayurveda Medical College and Hospital, Ahmedabad, Gujarat, India.

³Professor, Dept of Samhita, Siddhanta & Sanskrit Sri Krishna Government Ayurvedic College, Krurkshetra, Haryana, India.

ABSTRACT

Growth of any knowledge base depends on a dynamic continuum of a tripod of creating new knowledge through research, effective transfer of knowledge through proactive education and utilization of the knowledge with good professional practice. A set of knowledge system is likely to be relative to time & place setting which facilitates its need based development. But though *Ayurvedic* education system is one of the recognized age old education systems but still neither developed nor advanced alike other education system across the globe. Due to lack of maintenance of such dynamic continuum in current education system of ancient system of Indian medicine, the knowledge bases of *Ayurveda* becomes stagnant, static & gradually pass into merely history & may not remain dynamic & useful. Need of dynamism and activism through incorporation of cognitive psychology in education curriculum and enhancement of reasoning skill followed by critical thinking in the mind of medical professionals is quite necessary in the field of *Ayurveda* to make it up to date and develop it further in tune with the changing needs of the society today. Keeping this in view an effort has been made by the author to explore the concept of *Yukti* as key element of cognitive psychology make its relevant application in the field of current teaching & education and practice of Ayurved worldwide.

Key words: Logic, Reasoning, Critical thinking, Vicharya, Oohya, Yukti

INTRODUCTION

Education is empowerment in true sense. Education is the dynamic process which enables the knowledge base to exist and remain useful. On one end it motivates the growth of new knowledge and at the other end it opens vistas for its professional application for the benefit of the human kind. Education

synthesizes culture, works for a better society and a better world tomorrow. That's why the paradigms have been changing in recent years in teaching & education related to various stream worldwide. A set of knowledge system in any field is likely to be relative to time & place setting which facilitates its need based development. *Ayurveda*, one of the age old systems of medicine has been recognized as eternal perfect science beyond time and space. But though it is eternally proven irrespective of age but still it is not wise to sit idle on the treasure of ancient knowledge base without any effort to generate new knowledge, innovative education and renewed methods of the practice. In current scenario medical students master an enormous body but lack of systematic problem solving ability and effective clinical decision making. Medical academics and practitioners have raised concern about the low level of critical reasoning. High profile reports have called for reformation in *Ayurvedic* medical education to create a better generation of

Address for correspondence:

Dr. Shiva Prasad Mohanty

Associate Professor, Department of Dravyaguna Vigyana
Monark Ayurveda Medical College and Hospital, Ahmedabad,
Gujarat, India.

E-mail: spmohanty27@gmail.com

Submission Date: 13/05/2023 Accepted Date: 21/06/2023

Access this article online

Quick Response Code



Website: www.jaims.in

DOI: 10.21760/jaims.8.7.8

doctors who can cope with the system based problems and would encounter in an inter disciplinary and collaborative environment. Understanding cognitive psychology i.e., science lay emphasized on perception, critical thinking & logical reasoning, problem solving should be incorporated as integrated part of medical education and cultivated in medical students to enhance the ability for analyzing various problem as well as seek to deduct relevant information in order to reach an appropriate conclusion. In the dynamism movement of effective transfer of knowledge base through proactive education, critical thinking and logical reasoning will be the key concern which may provide foundation for creation of new knowledge through research and for good professional practice. If such dynamism will not be maintained the knowledge base of *Ayurveda* becomes stagnant, static and gradually pass into merely history and may not remain dynamic & useful.

AIM AND OBJECTIVES

1. To explore the concept of logic and reasoning domain as the foundation of any knowledge base w.s.r to 'Yukti Pramana' in *Ayurveda*.
2. To understand its relevant application for the prospective study of *Ayurveda*.

MATERIALS AND METHODS

- 1) Some web journals and research papers have been referred for understanding the crisis in current education system due to lack of reasoning skill in the field of *Ayurveda*.
- 2) A complete review of great compendia Charaka Samhita has been made to explore the concept of *Yukti* and its relevant application in various contexts.

REVIEW OF LITERATURE

There is no place of blind faith in the authority and tradition of *Shastra*. Only the facts challenged critically, verified by structured inquiry, supported with evidence based data and explained afresh can build the attention of seekers of contemporary era. *Acharya Charaka* the great philosopher of *Ayurveda* has broadly

depicted the concept of epistemology i.e., science of understanding & knowledge which encourages structured inquiry in every aspect such as in understanding facts conceptually, validation through demonstration and new creation & innovation with the help of logical intelligence etc. To achieve this critical thinking followed by critical reasoning ability must be fostered among medical practitioners. But the biggest problem which emerged as crisis in current education system in *Ayurveda* is poor grading system. It judges the intelligence of a student on the basis of academics which is in the form of examination paper. Indirectly it becomes unfair to students who are good in their overall performance but not good at specific subject. Moreover, the students only strive to get good marks through mugging up and not actually grasping the concept efficiently. Furthermore, the current education system in some days focuses on theory marks and only a little percentage is given for practical. That makes the students to run after the bookish knowledge but not actually applying it into real world. This practice makes them perplexed when they go out in the real world due to lack of relevant knowledge. In 21st century the medical practitioners must think their way through abstract problems, emphasis must be given on enhancement of analytical & creative skills among the students instead of focusing on ranks & grades of the subject and expected to take effective decisions in all well-defined and ill-defined emergencies. Again, until *Ayurveda* will not be elaborated critically and explained afresh with relevant contemporary illustrations its relevant application neither can be understood nor implemented in real world situation. Even it cannot catch up with other sciences which are ever progressing & expanding. Due to lack of scientific soundness in the theoretical foundation of *Ayurveda* and quality of research *Ayurveda*, is recognized as pseudoscientific till date.

Interpretation of 'Yukti' in contemporary science & *Ayurveda*

Yukti is considered as fourth *Pramana* (structured inquiry) which play the key role for understanding as well as exploration of the hidden treasure of *Ayurveda*. *Yukti Pramana* is amalgamation of *Aptopdesha*

Pramana, Pratyaksha Pramana, Anumana Pramana coupled with logical and creative thinking to arrive at a fruitful conclusion. 'Yukti' is derived from the verb "Yuja" meaning to connect, join, arrange & prepare. 'Yukti' means union, junction, connection, combination, arguments, intellectual weighing of circumstance etc. It represents the systemic planning designed by the intellect by organizing one or more relevant factors/information to solve any issues.^[1] It is nothing but the intellectual perception resulting from the analysis of varied causative factor. Intellectual perception can be made two types of logic. Deductive and Inductive. Deductive reasoning is the act of making a generalized statement and backing it up with specific scenarios or information. It involves in examining a general case, deducing a general set of rules or principles and then applying these rules to specific case. Inductive reasoning is the act of using specific scenarios and making generalized conclusions from them. Inductive reasoning relies on patterns and trends while deductive reasoning relies on facts and rules. Inductive reasoning follows a flow from specific observation to broad generalization while deductive reasoning flows from general to specific. The main difference between inductive and deductive reasoning is that inductive reasoning aims at developing a theory while deductive reasoning aims at testing an existing theory.

The concept of cognitive psychology i.e., science deals with critical thinking & cognitive reasoning covers under the umbrella term 'Yukti' in *Ayurveda* which has the ultimate aim to validate existing knowledge and exploration of new facts/phenomena from the fundamentals of existing knowledge. According to *Cakrapani* the great commentator of *Caraka Samhita* 'Yojana', 'Pravritti', 'Upaya' are the synonyms of *Yukti* as mentioned in various contexts.^[2]

Cognitive reasoning: essential attribute of medical practitioners

'Yuktigya' i.e., the ability to think logically and rationally has been described as important characteristic of Physician.^[3] It can be compared with the managerial skill of the physician to make proper

selection of drug and treatment modality irrespective of any well-defined or ill-defined medical emergencies. 'Vitarka' is one of the important attributes among the six attributes of a successful physician as prescribed by *Acharya Charaka*.^[4] Ability to enhance critical thinking followed by logical reasoning skill enables the medical practitioners to prevent medical / clinical errors, to make appropriate clinical decision and identifying better alternation for diagnosis and treatment. Cognitive reasoning skill opens a vista for analyzing the acquired knowledge from the treatises and makes its relevant application in real world situation. Enlighten treasure of knowledge of *Shastra* can be explored in a very scientific manner when it will be perceived through cognitive reasoning.^[5] Critical thinking i.e., ability to think analytically from various angle in an orderly and practical manner will provide a base to become creative & constructive to generate all possible explanations. The terms 'Sabyabhichara', 'Jijnasa' etc. has been described under 'Vaadamarga' which lay emphasis on critical thinking skill.^[6] All possible explanations to answer any question can be presented logically by gathering, organizing, assessing relevant information. Quality thinking can enhance quality output and increase productivity.

Cognitive reasoning in teaching pedagogy

According to pedagogy 'Yukti' can be compared with imaginative & logical skills of organizing, analyzing the relevant information to rationalize any fact or knowledge. It is required to establish the cause-effect relationship by analyzing multiple points related to the phenomena. It is advised to carefully examine the texts and available knowledge based on *Yukti* before accepting any theory or principles.^[7] Various technical means to understand *Shastra* such as *Tantrayukti*, *Vaadamarga* etc. explained in the text highlight the importance of *Yukti*. In current education curriculum critical thinking & reasoning is considered as essential component in the global minimum standards for medical education. It promotes the ability to be creative and constructive to generate all possible explanations for findings, think of implications and apply new knowledge to broad range. *Yukti* has been extensively used in daily learning & teaching how to

apply textual knowledge & practical experience and logical reasoning simultaneously. To an extent logical reasoning skill can not only be taught but also developed and enhanced in students. Important aspects such as questioning, arguing, how to ask good, relevant and logical questions and evaluated the soundness of arguments must be incorporated in the mind of the students from the beginning. Cognitive reasoning i.e., *Yukti* encourages debate and clarify thinking and teaches students how to look at an argument, discern fact from fiction even to understand how something learned in one lesson can be applied to another in later date. The logic and reasoning domain describes how to enhance the student's ability to think through problems and apply strategies for solving problem. Such strategies require the ability to make connections among the events or ideas by recognizing cause & effect relationship and comparison based on past knowledge to build new knowledge. Logical thinking uses reasoning skill to objectively study any problem which helps to make a rational conclusion. Logic trains the brain to think clearly about all subjects by ordering information into usable form. This is the skill how to organize information, make connections the pre conceived existing knowledge in establishing some new phenomena or fact based on cause-effect principle, arrive at a define conclusion etc. need to be acquired by every learner, researcher or practitioner. Logical ideas build a sketch for connections of relevant facts in rational manner without jumping to unfounded conclusion.

Cognitive reasoning and clinical diagnosis

In the field of medicine in present world diagnostic errors are responsible for significant number of adverse effects. Logical reasoning and good decision making skills can be considered as key factors in reducing such errors.^[8] Both clinicians and patients rely on an accurate diagnostic process to identify the correct illness and craft a treatment plan. It is frequently assumed that knowledge and clinical experience are sufficient to improve a clinician's diagnostic ability but decision making and judgment can be made by proper cognitive psychology of diagnostic reasoning. It is the ability to integrate and

apply different types of knowledge, weigh evidence critically and reflect upon the process used to arrive at a diagnosis. Problems with clinical reasoning often occur because of inadequate knowledge, flaws in data gathering and improper approach to information processing. Cognitive psychology of diagnostic reasoning will be helpful for transformation of medical data into an actionable diagnosis. *Ayurvedic* classics vividly describe the importance of reasoning skill in wise physician for clinical diagnosis of all well & ill-defined cases and make rational decisions in patient centric approach.^[9] it is mentioned that a wise physician should not blindly follow the instructions mentioned in the chapters of the text and advised to make rational decisions based on own intellect after considering relevant information related to one or more factor such as *Desha Prabhava*, *Kala Prabhava*, *Bala Prabhava*, *Agni*, *Vaya*, *Prakriti* etc. *Yukti Pramana* forms the basis for diagnosis of unknown diseases (*Anukta Vyadhi*) conditions of those not mentioned in the text. By understanding the nature of disease (*Prakriti*), site of occurrence & manifestation (*Adhithana*), evolution process (*Samutthana*) disease can be diagnosed logically and treatment plan can be provided.^[10] While justifying the different ways of classification of disease, the physician has been given the liberty to classify the condition based on his own intellect and reasoning.^[11] The knowledge of prognostic signs (*Arista Lakshana*) is also based on *Yukti*.^[12]

Cognitive reasoning and treatment

The main treatment modality in Ayurveda perspective is based on '*Yukti*'. '*Yukti Vyapasraya*' *Chikitsa* one among the three modalities of treatment is used in common practice.^[13] *Yukti* is the rational application of knowledge in treatment of disease which is based on dose (*Matra*) and time (*Kala*). The physician's skill is largely dependent on logical analysis & clinical knowledge and success in treatment if not based on logical and rational principles is considered as success by chance.^[14] *Yukti* provides tool towards patient centric approach & individual based treatment and the outlook of physician towards imparting the treatment strategy. Cognitive reasoning is considered as key

concern in the management of all kinds of diseases according to the principles of *Ayurveda*. Because the stages of disease is affected by multiple factors like Dosha vitiation, administered medication (*Bhesaja*), place and geographical condition (*Desha*), time and climatic condition (*Kala*), strength of individual (*Bala*), Dietary habit (*Ahara*), age (*Vaya*) etc.^[15] choice of treatment whether *Sansodhana* or *Samsamana* can be administered in any patient is based entirely on *Yukti*. The treatment is only effective when it is based on scientific and logical reasoning directed towards wellbeing of the sufferer.

Cognitive reasoning and selection of drug

Now a day's herbal medicine has renewed attention and biodiversity prospecting of medicinal plants is the worldwide activity in current years. Because nothing in the universe exists that has no medicinal or therapeutic value. Hence with the help of *Yukti* or cognitive reasoning skill of the physician, medicinal properties of every drug can be explored.^[16] While describing the different classes of medicine (*Maha Kashaya*) in *Charaka Samhita*, the great compendia of *Chikitsa* it has been advocated that the drugs as mentioned under specific *Dasemani Maha Kashaya* are exemplary and the physician can make use of other herbs based of pharmacological action towards the disease condition depending on their own intellect and reasoning. It has been clearly mentioned that the arrangement of *Maha Kashaya* is made for understanding and application for those with low intellects while those with higher aptitude can implement other herbs than those mentioned in the chapter.^[17] Therapeutic efficacy of any drug depends upon wide and wise applicability of *Yukti*. The poison can provide healing properties when used in an appropriate manner while the same used none judiciously can lead to produce unwanted consequences. The potency of the drug administered can be modified or even improved rational application of drug.^[18] There is no limit in the invention of formulation or treatment modalities as there exists wide scope for the development of multidrug regime. Accordingly, the wise physician can exclude the particular drug from the formulation or include another ingredient or their quantity can be altered

logically based on reasoning as per the clinical condition though not mentioned in the text. With help of reasoning one can make innumerable combination of drug.

DISCUSSION

Critical thinking & reasoning is an essential cognitive skill and also a crucial component for health care professionals. In recent years there has been increasing recognition that medical education must focus on higher order of thinking process and reasoning skill which is required to encounter the emergency challenges in medical education. Various emerging issues in the field of medicine such as diagnostic error due to failure in information integration, information integration, physician's cognitive biases or mental shortcuts or treatment error can be prevented by cognitive thinking and reasoning skill which must be cultivated by educators. Because the clinician's ability to provide safe, high-quality care can be dependent upon their ability to think, reason and judge.

CONCLUSION

Ayurveda medicine is considered as pseudoscientific because its premises are not based on science. Both the lack of scientific soundness in the theoretical foundation of *Ayurveda* and the quality of research has been criticized. Many label *Ayurveda* as a pseudoscience because of their limited exposure and lack of understanding about its basic principles. All type of confusion, fragmentation or uncertainty in such an eternally proven science can be eradicated when treasure of knowledge documented in various classics will be churned by utilizing various cognitive skills.

REFERENCES

1. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, SutraSthana, Chp.11, Verse no 25, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
2. Singh R.H., Acharya Yadavji Trikmji, Charaka Samhita of Agnivesha with Ayurveda Deepika commentary by Sri Cakrapani Datta, Chp 11, Verse no54, Chp 26, Verse no 29, Chowkhamba Surbharati Prakashana, Varanasi, Edition 2017.

3. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.2, Verse no 16, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
4. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.9, Verse no 21, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
5. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.9, Verse no 24, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
6. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 2, Vimana Sthana, Chp.8, Verse no 45,46, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
7. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 2, Vimana Sthana, Chp.8, Verse no 3, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
8. <https://ncbi.nlm.nih.gov>
9. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.1, Verse no 123, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
10. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.18, Verse no 45,46, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
11. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 2, Vimana Sthana, Chp.6, Verse no 4, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
12. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 2, Indriya Sthana, Chp.1, Verse no 3, Chp no 12, verse no 89, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
13. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.11, Verse no 54, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
14. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.20, Verse no 21, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
15. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 7, Siddhi Sthana, Chp.2, Verse no 25,26, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
16. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.26, Verse no 12, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
17. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.4, Verse no 20, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.
18. Sharma R.K, Dash Bhagwan, Charaka Samhita Text with English Translation and exposition based on Cakrapani Ayurveda Depika, Vol 1, Sutra Sthana, Chp.1, Verse no 126, Chawkhamba Sanskrit Series Office, Varanasi, Reprint 2019.

How to cite this article: Kshirabdhī Tanaya Rautaray, Shiva Prasad Mohanty, Raka Jain. Cognitive Psychology: As essential & integrated part of medical education w.s.r. to Yukti Pramana in Ayurveda. J Ayurveda Integr Med Sci 2023;07:48-53.
<http://dx.doi.org/10.21760/jaims.8.7.8>

Source of Support: Nil, **Conflict of Interest:** None declared.
