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The philosophy of Nyaya, epistemology and Ayurveda research methodology

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Abstract

This indigenous science of health termed *Ayurveda* has survived since antiquity due to its strong foundation in the form of its fundamental and basic principles developed on the basis of the tenets of Indian philosophy. The Indian Philosophy of *Nyaya* is known for its deliberations on the means of valid examination known as *Pramaana*. The study of these means of scientific enquiry is known as 'Epistemology'. Therefore, the crux of the *Nyaya* system of thinking or Epistemology has transformed the method of scientific enquiry as systematic and pragmatic.

The means of examination/validation explained in *Nyaya* were probably the first ever tools for scientific enquiry in the quest for knowledge known as Research. There is a lot of talk about the choice of research methodology to be adopted which brings out the truth and extend the knowledge vistas, particularly in *Ayurveda*. The old concepts have to be look in the modern scientific light with no scope of any myth or fallacy. This review paper therefore aims to unravel the relationship between the triad of Philosophy of *Nyaya*, Epistemology and Research methodology in *Ayurveda* and its significance in the enhancement of the knowledge of *Ayurveda*.

Keywords: Nyaya, Scientific - Enquiry, Pragmatic, Basic, Applied, Research

1. Introduction

As the western system of medicine needs the preliminary knowledge of the basic sciences of Physics, Chemistry and Biology, so also, an intelligent study of *Ayurveda* requires a sound knowledge of the basic philosophies of the *Nyaya*, *Vaisheshika*, *Samkhya*, *Yoga* and *Meemamsa*. The development of *Ayurveda* has taken place with the ideas of the Indian Philosophies and their needful modifications conducive to the fulfilment of its aims and objectives. These principles of *Ayurveda* are supposed to be unchanging and firm as they are said to be postulated by the unbiased seers of yore^[1].

However, with the changing times and advancements in the scientific know how and skill, it is mandatory to validate the accepted and presumed facts through scientific methodology that renders objectivity to the subjective parameters mentioned in the *Ayurveda* classics. This scientific enquiry also called as research is not a new concept, as the *Ayurveda* system of medicine approves of the research process under the umbrella of *Pareeksha* (Examination/Enquiry)^[2].

This paper therefore shall discover the significance of relation between the *Nyaya*, Epistemology and *Ayurveda* Research Methodology.

The data and information has been gathered from the various classics of *Ayurveda* and the Philosophy of *Nyaya* and the knowledge has been critically evaluated and analysed on the inductive and deductive methods in the scientific light.

2. The Philosophical School of Nyaya

The Indian Philosophy mainly comprises of the six schools viz. *Nyaya*, *Vaisheshika*, *Samkhya*, *Yoga*, *Meemamsa* and *Vedanta*. All of these systems propagate their specific path to attain the final destination of eradication of all the sufferings of the world. Of these six, the philosophical doctrine of *Nyaya* specializes in the exposition of the methodology of examination. These methods of validation are termed as *Pramana* and the *Nyaya* is therefore called as the School of Logic, Discussion and Inference. It is also noteworthy that the *Vaisheshika* School of philosophy and the *Nyaya* School are considered to be almost identical in approach. Therefore, they are referred as the *Nyaya- Vaisheshika* system.

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2.1 Historical background of Nyaya

The philosophical system of *Nyaya* dates way back to before the third century. It is said to be promulgated by the seer *Gautama Akshapada*. The authentic text, *Nyaya Sootra* contains five chapters. The first verse of this system enunciates the utility of the system as it defines *Nyaya* as the validation of the subjects through the valid means^[3].

2.2 The crux of Nyaya system – Epistemology

The subject matter of the *Nyaya* School can be summarized in three headings-

- Metaphysics – Deals with the enumeration of 16 categories or *Padartha* which are essential to be known in all the aspects^[4]. These include *Pramana* (means of investigation), *Prameya* (objects of investigation), *Samshaya* (doubt), *Prayojana* (objective), *Drishtanta* (illustrative example), *Siddhanta* (principle) etc.
- Epistemology – This is cynosure of the *Nyaya* doctrine. The first category is the *Pramana* i.e. the means of validation which is studied as the separate branch of philosophy as Epistemology. This proposes a detailed methodology of logical reasoning along with the approval of Analogy and Perception as the competent instruments of scientific approach.
- Twelve objects of investigation – The system of *Nyaya* promulgate the twelve points of investigation (*Prameya*) like the body, Sense organs, objects of senses, intellect *et al.*^[5].

The Epistemology or the *Pramana Shastra* promulgated by the *Nyaya* school comprises of four methodologies of examination^[6], namely the *Pratyaksha* (Perception/Direct Observation), *Anumana* (Inference), *Upamana* (Analogy) and the *Shabda* (Authentic testimony).

The knowledge obtained through these four methods is determinate and categorical and hence valid. All the examinations and investigations are based on these tools.

3. The Direct Observation/Perception (*Pratyaksha Pramana*)

Nyaya defines the direct perception as the knowledge produced by the conjunction of the senses and their objects. This knowledge should be non- contradictory, free of fallacies and categorical^[7]. The perception is a direct cognition through the five senses. This includes visual, auditory, gustatory, tactile and olfactory perceptions.

3.1. Six - fold steps of Perception –

The *Nyaya* unravels the six stages involved in the perception process. These steps are termed as *Sannikarsha* (Contact)^[8]. This is again a scientific systematic exposition involving the observation from the gross/superficial to the minute/in depth. These six points of contact are-

- Samyoga* (Conjoined) – The first step that includes the contact of the substance with the sense organ.
- Samyukta Samavaya* (Inherently joined) – The second step involving the contact of the quality of the substance. This is the perception of shape, size, colour *et al* which are inherently present with the substance.
- Samyukta Samaveta Samavaya* (Inherence in the inherently joined) – The third step that perceives the degree of the quality like the intensity of redness in various watermelons.
- Samavaya* (Inherence) – The perception of the sound.
- Samveta Samavaya* (Inherently inherent) – The perception of the quality of Sound. The intensity of sound with

regards to pitch, frequency and wavelength is perceived in this stage.

- Visheshana Visheshya Bhava* (relation of the qualification and qualified) - The non – existence (absence) is perceived at this stage.

4. The Inference (*Anumana Pramana*)

The direct perception although, is the first step towards the attainment of knowledge, is not the only one to rely at to arrive on the valid conclusions. There are number of limitations of the direct perception like the non- acuity of the senses, covering of the object to be perceived, group of similar objects *et al*^[9]. Thus, there arises a need to look for other means of attaining valid knowledge to overcome the restrictions of the perception. The complete knowledge is therefore obtained with the other instruments of Inference (*Anumana*), Analogy (*Upamana*) and the Authoritative testimony (*Shabda*).

The inference is defined as that which is preceded by the perception and is classified into three varieties and provides the inference of all the three stages of time i.e. the past, present and the future^[10]. The three types of inference are illustrated by the examples like-

- The inference of the hidden fire from the smoke. (Present)
- The inference of the sexual intercourse from the pregnancy. (Past)
- The inference of the fruit from the seed. (Future)

The inference is explained as the judgement produced by the knowledge of the minor premise qualified by the knowledge of the universal proposition, the major premise^[11].

On the basis of continuous observation of the relation of the concomitance as that of the smoke and fire, the observer infers the relation of cause and effect. Thus, the inference is widely used as a tool of validation.

5. The Analogy (*Upamana*)

The Analogy (*Upamana*) is the knowledge of the minute and far (unfamiliar) by the virtue of similarity with the well-known^[12]. The essential cause of the Comparative/Analogous knowledge is the Comparison/Analogy. The cause of this knowledge is the cognition based on the similitude^[13].

The development of various sciences has taken place by the observation of the natural phenomenon and their application for the betterment of mankind.

The invention of the air plane is an excellent example of the utility of analogy, as the streamlining principle is attributed to the birds and fishes.

Ayurveda has utilized this methodology in the advancement of the knowledge of the health science.

6. Authoritative testimony (*Shabda*)

The valid assertions and authoritarian statements have been the greatest source of indigenous knowledge like that of the scriptures and *Ayurveda* classics. The authoritative testimony^[14], is defined as

- Statements of the persons/seers who, by the virtue of the power of penance/great spiritual effort and knowledge attain the state which is aloof of the mental states of attachment, detachment and ignorance which is the root cause of falsehood and bias.
- Possess the all-time knowledge which is unblemished and correct sans any shortcomings.
- The statement made by such seers is beyond doubt and is acceptable.

In the present day scenario, the reliable and factual statements/expositions of the experienced persons in their respective knowledge arenas are considered to be the authentic

and therefore approved.

The knowledge of the history, basic sciences *et al* are completely based on the authoritative/reliable testimonials. From the above description of epistemology, it becomes clear that all the sciences need the tools of examination to pursue their research activity. Therefore, the epistemology is the base for the advancement of scientific reasoning through pragmatic experimentation and analysis.

7. The Role of Epistemology of Nyaya in Research Methodology of Ayurveda

Prior to the commencement of deliberations on the role of epistemology in the research methodology in *Ayurveda*, it is essential to have a discussion on the need of research in *Ayurveda* which is considered as a complete system evolved from the divine and therefore considered by some as unquestionable.

In this modern era of science and technology, there is no space for blind faith in tradition and classical texts. The faith has been replaced by skepticism and only the truth established by a systematic and unbiased method of experimentation and analysis is accepted. In short, the facts supported by figures (statistics) convince the people about the validity of any concept.

The truth seekers expect a hypothesis to be properly and methodically evaluated in the scientific light. Thus, *Ayurveda* faces a great challenge to prove its authenticity and validity in the changing environment. The concepts and tenets of *Ayurveda* system of medicine need to be re- evaluated in the modern scientific parameters and revised accordingly as per the need of time. A progressive science is that which is dynamic and undergoes continuous updating so as to move in tandem with the other contemporary sciences. Also, it is important to note that almost everything ranging from the environment to the habits of man have undone a considerable change since the inception of *Ayurveda* that demands an update possible through the Research.

The research in *Ayurveda* is not a new phenomenon as the classical literature of *Ayurveda* is full of instances of a variety of research activities. The presently available classical texts of *Charaka*, *Sushruta* & *Vagbhata* called as the major triad are themselves an excellent demonstration of literary research. The classical text of *Ashtanga Hridaya* and *Samgraha* by *Vagbhata* were formed in order to make the literature up to date^[15].

Similarly, the completion of the *Charaka Samhita* by the stalwart *Dridhbala* by addition of 41 chapters in various sections has been accomplished by the selective and collective methodologies^[16].

The ten points of investigation necessary before the initiation of the research process and its applied aspect in the form of the drug research has been clearly mentioned in *Charaka*^[17]. The development and advancements in the pharmaceutical preparations and alchemy in *Ayurveda* also symbolize fruitful research.

8. Means and Methods of Research in Ayurveda

The means and methods of research in *Ayurveda* are the *Pramana* studied as Epistemology.

The means are the five senses, mind and the intellect while the methods recommended are four fold tools of investigation^[18]. These tools are those envisaged in the philosophical system of *Nyaya* termed as Epistemology.

8.1 Role of direct perception (Pratyaksha) in Research

The most widely approved method of validation is the direct

perception as it is directly perceived by the research scholar. Through the sense organs the observer directly fulfills his desire to know the fact. However, as the sense organs have a restricted scope and range coupled with the other external factors like the overlapping between the similar entities, the direct perception is hindered.

Some of these hindrances are overcome by making use of the modern scientific innovations in the form of aids and devices that augment the scope of direct perception. The entities beyond the reach of senses like the microorganisms or breathing sounds are now perceived through the devices like the microscope and stethoscope.

The direct perception is the source of the knowledge valid for only the present as it is directly perceived by the senses. But, the true knowledge cannot be restricted to the present only as it has to be valid for all the three stages of the past, present and future.

This paves the way for the other means of attaining the valid knowledge, the inference (*Anumana*).

8.2 Role of inference (Anumana) in Research

The inference is an indirect method of validation valid for all the stages of time. It is based on the pragmatic logic and reasoning. The research plan/design also expects the inference as the main factor. The establishment of the relation between the cause and the effect is the aim of logical reasoning known as research. The utilitarian approach of the inferential knowledge is best understood by the laboratory investigations. The reports of the investigations are inferred on the basis of concomitance.

The inferential knowledge is imperatively based on the direct perception. Observation of the cause called as minor premise is the first step of inference followed by the observation of the regularity of positive or negative co-relation between the *probans* (cause) and *probandum* (provable). The concomitance of the two entities (Major premise) is the basis of inference. If one entity exists, its other concomitant has to be there. This tenet helps the scientist to draw a conclusion.

The fivefold statement (*Pancavayava Vakya*) for the inference^[19], is an excellent model of research in *Ayurveda* and the contemporary sciences. These five points of examination are-

- a. Formulation of Hypothesis (*Pratijna*) – The proposition of the research problem. The hypothesis is framed which is to be studied systematically in due course of research activity.
- b. Materials and Methods (*Hetu*) – The research plan/design that describes the materials and methods that would suffice the research activity. According to the hypothesis, the appropriate materials and methods are selected.
- c. Experimentation and demonstration (*Udaharana*) – The demonstrations and experimental study are undertaken at this stage that gives us the scientific data which is utilized at the later stage of the research activity.
- d. Discussion (*Upanaya*) – This is very important stage which includes the interpretation of the data collected through the experimentation and demonstrations. The possible relation between the cause and effect is drawn logically. The discussion of the possible relation between the cause and effect should be free from the fallacies of reasoning mentioned in the *Nyaya* School as *Hetvabhasa*^[20]. These fallacies vitiate the proper reasoning and thus pose a threat to the drawing of valid assertions and conclusions.
- e. Conclusion (*Nigamana*) – The final word/conclusion deals with the approval or the rejection of the hypothesis and paves the way for planning the future actions.

The western syllogism is however based on only three propositions of Major and Minor Premises along with the Conclusion.

Charaka has proposed the other means of examination in the form of logical plan (*Yukti*) which is a unique methodology based on the multiplicity of the factors [21]. The unique research design according to the needs is based on this means of examination/validation.

8.3 Analogy (*Upamana*) and *Ayurveda* Research Methodology

Analogy is the knowledge explained by the comparison of unknown one with the known on the basis of their similarity. The *Ayurveda* classic of Surgery namely the *Sushruta Samhita* utilizes the concept of analogy as a tool to validate the knowledge [22].

A number of instances and concepts suggest the utility of analogy in research activity. The training practice in surgery is imparted on the representative dummies based on the analogy [23]. The exposition of the phenomenon of transformation of tissues from one form to another is explained on the basis of analogy [24]. The nomenclature and diagnosis of diseases has been done on the basis of analogy.

The analogy is therefore a tool to validate and incorporate new knowledge like the understanding of the diseases hitherto unknown, identification of the drugs and herbs *et al.*

8.4 Role of Authoritative testimony/Scriptures (*Shabda*) in Research

The authoritative scriptures are the established and accepted facts mostly mentioned in the *Ayurveda* classics. They are the guiding principles for the initiation of research activity. The principles and concepts mentioned in the classics are questioned and revalidated in modern light. Also, the innovative search for the newer knowledge vistas is based on the established theories.

This can be better understood by having a glimpse of the objects of research/investigation mentioned in *Ayurveda* classics. There are mainly four objects of investigation in *Ayurveda* research methodology [25].

- Living Body (*Purusha*) – It comprises of the researches in the Anatomy, Physiology, Relation/Interaction between the man and environment *et al.*
- Disease (*Vyadhi*) – The pain/disease is studied in this object. The disease is examined and investigated in the terms of the etiopathogenesis.
- Medicine (*Aushadha*) – This includes the medicines and the diet. For the healthy, the medicine is the diet while for the diseased the medicine is prescribed.
- Opportune time (*Kriya Kala*) – Time is an inevitable factor in *Ayurveda*. The manifestation of the entities depends on the opportune time. The diseases are understood on the basis of six stages of their progression [26]. The seasonal variations and the proper regimen accordingly are the objects of investigation.

These four objects of investigation are mentioned in the classics of *Ayurveda* which provide us with the concepts to be investigated and enlighten our due course of action.

If nothing is explained, what to investigate?

9. Discussion and Conclusion

It is true that the contemporary sciences have advanced a lot and continue to scale new heights in this quest of knowledge owing to the successful pursuance of the highly intellectual activity of research. The seeds of the research method were sown in the Indian Philosophy mainly the school of *Nyaya*

which promulgated the means of valid examination in the term of *Pramana* studied under the umbrella of Epistemology. The western philosophy also accepts the epistemology as a tool of validation.

All the four tools of investigation discussed above together produce the true and valid knowledge.

Whatever the advancements made, the supremacy of these tools of investigation shall remain the guiding principles for the research activity in all the knowledge arenas.

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