Chapter-2

Review of Literature
All the available sites and retrieval modes, e.g., PUBMED, MEDLAR, Holistic.com, APA, PSY INFO etc. were attempted to collect the empirical studies on tridosha. Some of the theoretical viewpoints (Western-psychological and Eastern-Ayurvedic) have been presented in the preceding chapter. Few recent attempts indicative of resurgence in research and clinical applications of ayurvedic theories have been retrieved and cited in this chapter as a representative account of this interdisciplinary field.

Chopra (2000) reviewed the fundamental principles of Ayurveda and described the ancient classification of arthritis along with the comparisons to the modern system. Though the diagnosis is historical and clinical, it is based on the tridosha hypothesis. The Ayurvedic pathogenesis links arthritis to the gut. Management chiefly consists of diet and lifestyle changes, the panchkarma process, and herbal drugs. The rasayana concept of immunomodulation is introduced. Clinical ethnological validation of the ancient therapy has been considered to be necessary to meet the modern requirements and set up an interface with modern medicine.
Tripathi (2000) has suggested electro chemical parameters for objective monitoring of doshas/humour. In ayurvedic system of medicine, it is considered that a living system is made of panch-mahabuta, in the form of vatta, pitta and kapha at the physical level and satwa, rajas and tamas at the mental level. This covers the psychosomatic constitution and commonly known as the Tridosh theory. The imbalance in these body humours is the basic cause of any type of disease manifestation. Till date, several objective parameters have been proposed to monitor the level of these basic humours but none of them is complete. In this exercise, now it is proposed to consider free radical theory of diseases as one of the objective parameters. To be more specific, vatta can be monitored in terms of membrane bound signal transudation, pitta as the process of phosphorylation and de-phosphorylation of different proteins (signaling moieties and enzymes) and kapha can be viewed as the degree of gene expression as protein synthesis. This can be correlated with the ojas of the body or total body defense mechanism.

Mishra, Singh and Dagenasis (2001) considered the disharmony of mental doshas (satogun, rajogun, and tamogun) and body doshas (vatta, pitta, and kapha) as the major cause of illness. They thought that the goal of illness management in Ayurveda is to bring back harmony among the
doshas. The management includes clinical examination, diagnosis, dietary and lifestyle interventions and treatment. The clinical examination consists of Astha Sthana Pariksha (8-point diagnosis: pulse–diagnosis, urine, stool, tongue, voice and body sound, eye, skin, and total body appearance examinations) and examination of the digestive system and the patient's physical strength. The treatment consists of cleansing (Panchkarma), palliation (improve digestion, remove toxic waste, fasting, observe thirst, exercise, sunbathing, and meditation), mental nurturing, and spiritual healing depending on the disturbed doshas and the patient's constitution. The preferred use of bhasms and herbal formulas over the respective metallic salts or the single herbs is discussed. This review suggests a great potential for integration of Ayurvedic therapies into the healthcare system in the United States.

A neuropsychological account by Kurup and Kurup (2003) showed that right hemisphere is chemically dominant / Kapha state, had elevated digoxin levels, increased free radical production and reduced scavenging, increased tryptophan catabolites and reduced tyrosine catabolites, increased glycoconjugate levels and increased cholesterol: phospholipid ratio of RBC membranes. Left hemisphere is chemically dominant / Pitta state had the opposite biochemical patterns. The patterns
were normal or intermediate in the bihemispheric chemically
dominant/Vatta state. This pattern could be correlated with various
systemic and neuropsychiatric diseases and personality traits. Right
hemispheric chemical dominance/Kapha state represents a
hyperdigoxinemic state with membrane sodium-potassium ATPase
inhibition. Left hemispheric chemical dominance/Pitta state represents
the reverse pattern with hypodigoxinemia and membrane sodium-
potassium ATPase stimulation. The Vatta state is the intermediate
bihemispheric chemical dominant state. Ninety-five percent of the
patients/individuals in the tridosha, pathological, and psychological
groups were right-handed/left hemispheric dominant, however, their
biochemical patterns were different—either left hemispheric chemical
dominant or right hemispheric chemical dominant. Hemispheric chemical
dominance/tridosha states had no correlation with cerebral dominance
detected by handedness/dichotic listening test.

Joshi (2004) conducted a study with the objective to compute
quantitative estimates of the tridosha—the qualitative characterization that
constitutes the core of diagnosis and treatment in Ayurveda to provide a
basis for biostatistical analysis of this ancient Indian science, which is a
promising field of alternative medicine. The data sources were 280
persons from among the residents and visitors/training students at the Brahmvarchas Research Center at Shantikuj, Hardwar, India. A quantitative measure of the *tridosha* level (for *vatta*, *pitta*, and *kapha*) is obtained by applying an algorithmic heuristic approach to the exhaustive list of qualitative features/factors that are commonly used by *Ayurvedic* doctors. Knowledge-based concept of worth coefficients and fuzzy multi attribute decision functions are used here for regression modeling. Statistical validation on a large sample shows the accuracy of this study’s estimates with statistical confidence level above 90%. The estimates are also suited for diagnostic and prognostic applications and systematic drug–response analysis of *Ayurvedic* (herbal and *rasayanam*) medicines. An application with regard to the former is elucidated, extensions of which might also be of use in investigating the role of *nadis* in *Ayurvedic* healing vis-à-vis acupuncture and acupressure techniques. The importance and scope of this novel approach are discussed. It is concluded that the concept of *tridosha* has a sound empirical basis that could be used for the scientific establishment of *Ayurveda* in a new light.

Bhushan, Kalpana and Arvind (2005) have studied the genetic basis of *ayurvedic* phenotypes. Correlating phenotypes with genotypes remains the major post genomic challenge. Attempts to correlate
phenotype characteristics associated with ethnicity, geographical
divisions, or diseases to genotypes have had limited success. This means
that current approaches for identifying phenotypes associated with
hetotypes may be inadequate. Authors hypothesized that a human
phenome based on Ayurveda could provide an appropriate approach.
Specifically, there could be a genetic basis for the three major
constitutions (Prakriti) described in Ayurveda. The Prakriti classification
is based on differences in physical, physiological, and psychological
characteristics and is independent of racial, ethnic, or geographical
considerations. It may provide an appropriate means of classifying
phenotypes to be considered collectively for genotyping. As a pilot study
to test the hypothesis, authors evaluated 76 subjects both for their Prakriti
and human leukocyte antigen (HLA) DRB1 types. The genomic DNA
was extracted using a standard protocol. Subsequently, HLA DRB1
typing was done by low-resolution polymerase chain reaction sequence
specific primers and oligonucleotide probes. A reasonable correlation was
observed between HLA type and Prakriti type. The complete absence of
the HLA DRB1*02 allele in the vatta type and of HLA DRB1*13 in the
kapha type are significant, with $X^2 = 4.715$ at $p<0.05$. HLA DRB1*10
had higher allele frequency in the kapha type than in the pitta and vatta
types. As Ayurveda classifies the whole human population in three major constitutions as vatta, pitta, kapha and their possible combinations, their homologous relation to human genetic structure needs to be studied for validation. If validated, our hypothesis would have far reaching implications for pharmacogenomics, modern genetics, human health, and Ayurveda.

**Recent Trends:**

1. Some researchers have merged *tridosha* and *triguna* theories to derive psychosomatic constitutional viewpoint, e.g., Tripathi (2000), Mishra et al. (2001). Mental nurturing and spiritual healing have been included in the treatment plan. The voice and physical strength were incorporated in the diagnostics.

2. Through a bold attempt *tridosha* theory has been verified in the context of hemispheric specialization, an established research and clinical line in Neuropsychology (e.g., Kurup and Kurup, 2003). Tridosha measured by brain chemistry and cerebral dominance measured experimentally (psychological) showed independence. Hetero-method variance was obtained.

3. Joshi (2004) established statistical validity of *tridosha* by using algorithmic heuristic approach for regression modeling on the
basis of worth concept and fuzzy multi attribute functions. Success has been reported by Bhushan et al. (2005) in establishing *ayurvedic* phenotypes based on *tridosha* and genotypes based on genomic DNA extracted through standard protocol.

4. Despite some serious concerted efforts/attempts to measure, validate and empirically relate *triguna* to behavioural variables (Moazziz, 1970; Laxmibai et al., 1975; Rao & Harigopal, 1979; Das, 1987; Kaur & Sinha, 1990; Murutham et al., 1998; Sharma, 1999; Wolf, 2000; Kapur, Reddy et al., 2000; Wolf & Abell, 2003; Tripathi & Pandy, 2005 – all referred earlier), the *tridosha* theory seems to have more objective edge (as described above in para 2 and 3).

**Problem and Objectives:**

There appears a clear gap of knowledge in regard to *tridosha* with psychological standpoint; hence, the objective of the thesis was to verify the typology as espoused in *tridosha* theory.

The problem of the study was stated as "**Construct Validation of the Tridosha Theory of Adult Temperament.**"
Main objectives of the study were :-

1. To validate the dosha specific factors of behavioural traits as hypothesized in tridosha theory and

2. To validate the cluster of people (types) as hypothesized (seven types) in tridosha.