

## ABSTRACT

### BACKGROUND:

Āyurveda, the Vedic science of medicine, is a very ancient discipline which, extraordinary to say, also deals with the mind- body relationship. It is considered one of the world's oldest and most complex and complete systems of medicine, using natural healing, and containing immense wisdom for humanity.

According to Āyurveda, the organism function is controlled by three physiological processes called Dośas, Vāta, Pitta and Kapha which govern each individual. The science of Āyurveda stands on this three-part fundamental concept, Tridośa. An individual's health depends on maintaining these three dośas in states of balance. Conversely, imbalance of them leads to ill health.

Every organism has a natural state where one or more dośas are in dominance. Disease develops in the body in stages as dośas depart in various ways from their balanced state. States of a person's health, any disturbance or bodily illness, and complete cure from disease, are all governed by states of their dośas. Determining a person's Prakṛti and vikṛti, respectively their natural, balanced state of dośas, and their present states of imbalance, is central to Āyurveda diagnosis and treatment. An individual's Prakṛti or distinct characteristic physiology is a combination of these three fundamental factors. The Prakṛti indicate physical traits with implied mental characteristics. However, it is this that forms the natural characteristic of human beings. Various combinations of the three dośas make people different from each other. This unique concept of Prakṛti makes Āyurveda distinct from other medical systems. The question for Āyurveda in practice is how to measure a patient's Prakṛti / Vikṛti accurately. One accepted way is a questionnaire, technically known in social science as an 'inventory'. In this field there is currently a gap – questionnaires for the adolescent age group.

In the present study, we developed two unique Inventories (Kāśyapa Prakṛti Inventory & Kāśyapa Psycho Physiological Inventory) aimed at adolescents aged 13 to 18 years, we present the initial development of questionnaires to assess dośa Prakṛti in adolescents and a unique study to assess tridośa states, which are neither exactly Prakṛti or vikṛti. The study's focus was to assess participants' present state of mind in ways similar to a modern psychological tool but designed to reflect the states of their dośas. Here The need for such an instrument arises from

the problem of administering adult questionnaires to younger age groups. No previous instruments are appropriate to assess adolescents; hence, this study.

### **AIMS AND OBJECTIVES:**

The main aim and objective of the study was to develop such inventories with the same rigor seen in modern psychology assessment tools eg. the famous State- Trait Anxiety Inventory. The Kāśyapa Prakṛti Inventory was developed to assess adolescents 'dośa Prakṛti's,' their underlying levels of each dośa i.e. their original strength. It aims to assess both physical and physiological 'trait'. This inventory may thus be considered analogous to the Trait scale. And the Kāśyapa Psycho-physiological State Inventory assessing participants mood states, i.e. their present state of mind, may be considered analogous to the 'State' inventory. It uses the idea that, because dośas influence the mind, vikṛti states of the dośas are reflected in mood states.

To observe possible changes in assessment values, and to maintain relevance to S-VYASA research, a pre-post yoga intervention study was later performed.

### **METHODS:**

#### **Participants:**

Two groups participated: 1. High School students to 10th standard at Vivekananda Educational Centre, Jayanagar, Bangalore; and 2. 11<sup>th</sup> and 12<sup>th</sup> standard students at MES College in Maleshwaram, Bangalore. Responders in the study were thus adolescents aged 12 to 18 years.

#### **Design:**

To draw up the two inventories, stated properties of Vāta, Pitta and Kapha were studied in the following classic Āyurveda texts: Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Ashtanga Sangraha, Sharangadhara Samhita, Yogaratnakara, and Harita Samhita. All lakṣaṇas, symptoms, were listed, and repetitions eliminated. Specific Lakṣaṇa characteristics of each dośa were selected in order to assess the relative strength each dośa, i.e it's possible dominance.

Each dośa manifests certain unique characteristics in individual's psychophysiology. Questions describing characteristics of each lakṣaṇa were formulated. This yielded a raw, first draft of each questionnaire. These were given to Āyurveda experts and Psychologists for their opinion and suggestions in Delphi rounds of development, as is normal in the social sciences.

As stated above, the two scales were administered to adolescents: The Kāśyapa Prakṛti Inventory to 521 students; and Kāśyapa Psychophysiological Inventory to 450 students.

In the Pre-Post Yoga intervention study of the Kāśyapa Psychophysiological Inventory scale, the Yoga module was given thrice per week for four weeks to 82 participants. The module consisted of breathing/stretching practices, Yoga postures, Suryanamaskara, Pranayama, Mind Sound Resonance Technique, Mantra Recitation, Yogic Games and Relaxation Techniques.

Statistical analysis used Wilcoxon Signed Rank test and Spearman's rho test from SPSS 10.0 & 21.0

**Assessments:**

1. Delphi round of consultation for Questionnaires
2. Five option Likert scale & Yes/ No
3. Pre- Post assessment

**Intervention:**

Prior to the start of the intervention, permissions to conduct our study in the respective schools and colleges were obtained from the concerned authorities. The Consent form was given to participant's parents no-objection was received from all of those, whose children were going to participate. Participants were requested to be honest in their answers when responding to the questionnaires.

The developed inventories consisted of Kāśyapa Prakṛti Inventory comprising 84 questions with Yes/ No answers only and the Kāśyapa Psychophysiological State Inventory comprising only six questions, with a five option likert scale and a Pre-Post study aimed to assess tridośa changes in the participants, so the Kāśyapa Prakṛti Inventory scale was administered as a tool to assess them, together with a designed Yoga Module intervention, which was administered thrice a week for four weeks.

**RESULTS:**

The Kāśyapa Psychophysiological State Inventory was found to have Cronbach's alpha for each dośa: Vāta 0.806; Pitta 0.825; Kapha 0.768, with all dośa pair correlations: Vāta / Pitta, Pitta / Kapha, and Kapha / Vāta negative.

Its small number of questions precluded factor analysis; similarly, for Split-Half analysis of consistency. As in the State scale of the State Trait Anxiety Inventory, criterion validity cannot be obtained. Nor is Inter-rater reliability-consistency possible for a self-report questionnaire.

Nevertheless, the Kāśyapa Psychophysiological State Inventory is consistent and reliable, and that it can assess mood-states.

The scale's Consistency and Reliability yielded Cronbach's  $\alpha$  value: Vāta 0.549, Pitta 0.531, and Kapha 0.628. Spearman's rho coefficient for split-half consistency was  $\rho = 0.438$ . Correlations between all pairs of dośas were negative. The Kāśyapa Prakṛti Inventory may thus be classed as a dośa assessment scale for adolescents. It quantifies physical and physiological characteristics representing general feeling, i.e. overall well-being, rather than pathology. It is both consistent and reliable. The study of Yoga intervention was, administered the Kāśyapa Prakṛti Inventory Pre-and-Post the intervention. Statistical analysis used SPSS-21.0. Lack of normality led to the Wilcoxon Signed-Ranks-Test being used. Results showed: Vāta decreased,  $p < 0.05$ ; Pitta and Kapha increased,  $p < 0.05$ .

#### **CONCLUSION:**

The inventories that were developed, the Kāśyapa Prakṛti Inventory and Kāśyapa Psychophysiological Inventory consistently and reliably measure Prakṛti in adolescents. The integrated Yoga intervention showed significant results in its effects on tridośas in adolescents.