



## PRAKRITI ASSESSMENT: A MULTI MODULE ANALYSIS OF PRAKRITI IN HEALTHY INDIVIDUAL

### Ayurveda

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### ABSTRACT

As for the most troubling and leading health issues of today's era are the different life style disorders, any practice that could pave the path to overcome this issue shall be a boon to the medical field. One such mode which can help, not only to prevent the lifestyle diseases but also to recommend personalized treatment and to prevent other diseases as well is, "Prakriti – analysis". To assess the prakriti a more defined, precise and accurate questionnaire is needed. One such effort has been made in the present study to check the reproducibility of the tools which are already available.

### KEYWORDS

*Prakriti, questionnaire, assessment, standardization*

### INTRODUCTION:

AYURVEDA, the science of life that emerged 5000 years back, provides a broad knowledge on how one should live, explaining the physiological and biological aspect of human being, different modalities of surgery, the variant form of human constitutions, the usage of herbs and many other techniques for maintaining and achieving health, which is the objective of this ancient science.

The new era of medical research lays attention to medicine being personalized and for this it is developing scientific methods to study the whole biological system. But in our ancient science of life-Ayurveda, this has been into practice already by assessing the "Prakriti", of an individual and then prescribing him/her the medications or regimens as per his/her Prakriti. Prakriti is framed by the pre-dominating dosha- "vata-pitta-kapha" at the time of Shukra-Shonita sanyoga that is the union of male and female gametes<sup>1</sup>.

Thus by knowing one's prakriti, personalized recommendation for diet and nutrition can be given, for having a better and healthy life and preventing the upcoming lifestyle disorders, which in current era needs to be given an alarming attention.

Ayurveda promotes constitutionally dependent guidelines for maintaining balance and protection against disease.<sup>2</sup> Thus for attaining the above said objectives of Ayurveda, determining the accurate Prakriti of an individual, so as for right recommendation of diet and lifestyle is very much crucial. Till date in this field, various researches have been carried out to standardize the questionnaires which are mostly subjective and has tendency to vary. In current study, we have taken 3 standardized questionnaires and it is the need of the hour to fill up the lacunae causing a wide range of variations in the assessment of individual's constitution.

### Aim:

To find out the accuracy of the questionnaires for the assessment of Prakriti carried out by multiple investigators, in order to frame a more accurate questionnaire.

### Objectives:

- To find out the variations of prakriti assessment of each Questionnaire.
- To find out the variations among Investigators in each questionnaire.

- To find out the variations in prakriti assessment among the questionnaires.

### METHODOLOGY:

#### INCLUSION:

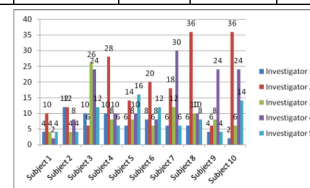
Healthy adults of age between 18-30 yrs. 10 healthy volunteers of either sex were selected equally between the age group 18-30 yrs. Each one of them were subjected to Prakriti analysis with the help of 3 standardized Questionnaires separately by 5 Ayurvedic experts. The same subjects were re-assessed with the help of the same 3 Questionnaires separately<sup>(3,4,5)</sup>, by the same experts, at an interval of 3 days, without informing the expert regarding the previous assessment result. The data was collected and analyzed.

### RESULTS:

#### Questionnaire 1<sup>3</sup>:

**Table 1: Variance values of test and retest done through Questionnaire 1**

Two-way ANOVA	Ordinary				
Alpha	0.05				
Source of Variation	% of total variation	P value	P value summary	Significant?	
Row Factor	27.40	0.0053	**	Yes	
Column Factor	16.65	0.3309	ns	No	
ANOVA table	SS	DF	MS	F (DFn,DFd)	P value
Row Factor	983.5	4	245.9	F (4, 36) = 4.407	P=0.0053
Column Factor	597.5	9	66.39	F (9, 36) = 1.190	P=0.3309
Residual	2008	36	55.79		



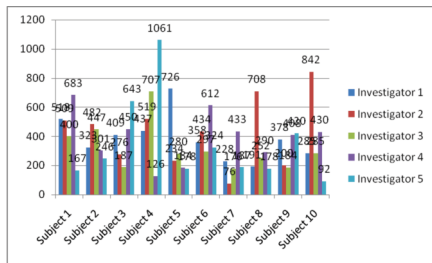
**Graph 1: Variance values of test and retest done through Questionnaire 1**

The ambiguity in the test and re-test done through the questionnaire 1 by each investigator on 10 subjects has shown statistical significance ( $p < 0.01$ ).

**Questionnaire 2:**

**Table 2: Variance values of test and retest done through Questionnaire 2**

Two-way ANOVA	Ordinary				
Alpha	0.05				
Source of Variation	% of total variation	P value	P value summary	Significant?	
Row Factor	3.208	0.8279	ns	No	
Column Factor	18.90	0.4797	ns	No	
ANOVA table	SS	DF	MS	F (DFn, DFd)	P value
Row Factor	67011	4	16753	F (4, 36) = 0.3707	P=0.8279
Column Factor	394798	9	43866	F (9, 36) = 0.9707	P=0.4797
Residual	1626831	36	45190		



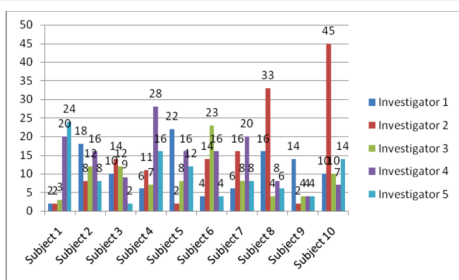
**Graph 2: Variance values of test and retest done through Questionnaire 2**

Though there is variance among the test and re-test values done through Questionnaire 2 the difference in values shown are insignificant statistically ( $p > 0.01$ )

**Questionnaire 3:**

**Table 3: Variance values of test and retest done through Questionnaire 3**

Two-way ANOVA	Ordinary				
Alpha	0.05				
Source of Variation	% of total variation	P value	P value summary	Significant?	
Row Factor	7.490	0.5154	ns	No	
Column Factor	11.23	0.8259	ns	No	
ANOVA table	SS	DF	MS	F (DFn, DFd)	P value
Row Factor	274.5	4	68.63	F (4, 36) = 0.8293	P=0.5154
Column Factor	411.5	9	45.72	F (9, 36) = 0.5525	P=0.8259
Residual	2979	36	82.75		



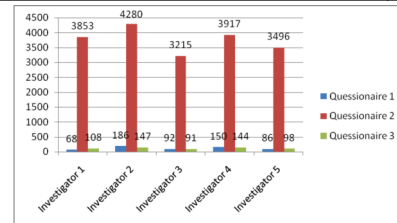
**Graph 3: Variance values of test and retest done through Questionnaire 3**

Test and re-test values obtained through Questionnaire 3 shows variability though when analyzed statically there is no significant variance ( $p > 0.01$ )

**Overall:**

**Table 4: General Variance of Questionnaires among investigators**

Friedman test	
P value	0.0239
Exact or approximate P value?	Exact
P value summary	*
Are means signif. different? (P < 0.05)	Yes
Number of groups	3
Friedman statistic	7.600
Data summary	
Number of treatments (columns)	3
Number of subjects (rows)	5



**Graph 4: General Variance of Questionnaires among investigators**

The combined variation in assessment of 10 subjects done by 5 investigators through all the 3 tests, when analyzed statically through non parametric test (as reference values are different for different groups and there is subjectivity in assessment) showed significant

**DISCUSSION:**

Prakriti analysis is an essential step, in the better understanding of an individual's physiological and psychological make up. Ayurveda attempts at providing health to an individual in a unique manner in coherent to his/ her needs and thus the better understanding of Prakriti allows an ayurvedic physician to plan a better protocol suiting to the individual itself; thus, generating a need of a standardized tool for a more precise assessment of this parameter. Based on the principles, cited in ayurvedic texts for assessment of prakriti the standardized protocols, put to test, have been developed and promoted.

In the study carried out, a comparative analysis of each protocol was carried out to further understand the use of an integrated approach allowing the user to assess Prakriti in a more accurate manner through application of multiple protocol over time.

**Discussion regarding distribution of patients:**

An equal distribution of patients was maintained during the study, so as to negate the effect of variance among gender distribution of parameters. Also the variations caused due to different age groups was converted to a constant parameter by limiting the age criteria to middle aged individuals (age group 18-30 yrs.)

**Discussion regarding result outcomes:**

The variance, among the values of assessment parameters done for questionnaire 1, showed statistical significance, implying that this questionnaire may not be sufficient enough for correct assessment of Prakriti. Moreover the ambiguity may lie in the improper understanding of either of the parties in interpreting the mentioned characteristics.

The questionnaire 2 & 3 values showed variance between pre and post test, yet statistically there was no significant result. This pre- test and post- test variance between the assessment results, though not statistically significant, clinically may lead to improper planning of treatment protocols for the individuals. Hence it also needed to be put-up to consideration. This variance may owe to the subjectivity of the assessment parameters and the recurrence of parameters in multiple columns of assessment.

An analysis of general variance among the result of all the questionnaires were also carried out to better understand the interdependent nature of multiple assessments carried out through different criteria at a single period of time, thereby, highlighting the misinterpretation of parameters. This was observed owing to repetitions of parameters at multiple instance in multiple questionnaires. This ambiguity was statistically significant, thereby supporting the statement.

To summarize, the discussed results show that except for questionnaire 1 the variance in the values of the test and retest done by the investigators is statistically insignificant, though there is variance in actual test values of all the questionnaires done on successive assessments. The probable cause of such variations occurring during different time intervals could be due to the factor that the parameters being subjective in nature, are prone to show ambiguity as they rely much upon the subjectivity of the assessor as well as the perception of the test subject.

The overall variance being positive statistically supports the statement in question.

#### **CONCLUSION:**

1. There is variability in the pre and post assessment values of all the 3 questionnaires, though statistically significant for only the 1<sup>st</sup> questionnaire.
2. Variance among the questionnaires also show statistical significance.
3. A better assessment tool can be developed integrating the existing tools and other objective parameters for better analysis of this component of the body.

#### **Summary of roles/ responsibilities of Authors:**

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