

1 A Self-Rating Ayurveda Scale to Measure the Manasika Prakrti 2 of the Children

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6

7 **Abstract**

8 Background: Self-rating inventories to assess tridoshas (Vata,Pitta and Kapha) have been
9 developed and validated for adults. The objective of this study was to develop and standardize
10 self-rating scale to assess the M?nasika prakrti(Sattva,Rajas and Tamas) of the children
11 according to Ayurveda .Method: The 54-item Sushruta Child Personality Inventory(SCPI)
12 was developed on the basis of translation of Sanskrit verses describing Sattva (A), Rajas(B)
13 and Tamas prakrti (C) characteristics, described in Ayurveda texts and by taking the opinions
14 of 6 Ayurveda experts and two psychologists. The scale was administered on children of the
15 age group 8-12 years in New Generation National Public school.Results: This inventory was
16 named Sushruta Child personality inventory (SCPI) and showed high internal consistency.
17 The Cronbach's alpha for A, B and C scales were 0.60, 0.64 and 0.61 respectively. And the
18 Split-Half reliability for A,B and C scales were 0.62, 0.68 and 0.54 respectively. Factor validity
19 coefficient scores on each items was above 0.3 on Sattva , Rajas and Tamas scale.

20

21 **Index terms**— triguna, prakriti, sattva, rajas, tamas, ayurveda.

22 **1 Introduction**

23 according to western psychology, traits determine individual's behavior. While Indian philosophy and Indian
24 psychology proclaim individual's character based on predominance of any of the Trigunas (Sattva, Rajas, Tamas).
25 Sattva refers to balance, tranquility, and purity. Rajas refers to action, passion. Tamas refers to laziness, delusion.
26 [1] ?yurveda considers Rajas and Tamas as m?nasika doshas, which are responsible for the manifestation of
27 neurosis and psychosis. Classical texts of ?yurveda describes 16 types of mental personalities (seven types of
28 Sattva, six types of Rajas, three types of Tamas) determined by pre dominance of each gunas. [2][3][4][5][6][7].
29 Imbalance of Rajas and Tamas can be counteracted by increasing Sattva (Satvavajaya) by Yoga as also diet
30 regime.

31 Shilpa et al. [8] have discussed the importance of analyzing trigunas in individuals. Dube KC. [9] has
32 reviewed the concept of prakrti according to ?yurveda perceptive and showed the similarities between ?yurveda
33 concept and modern gestalt theory, he mentioned the correspondence of 16 types of personalities with 16 types
34 of psychological disorders. David Wolf. [10] has developed and standardized Vedic personality inventory, and has
35 found psychometric properties of shortened version of the inventory.

36 Stempel HS, [11] has correlated Vedic personality inventory with Daily Spiritual Experiences Scale and the Brief
37 Symptom Inventory. G?ta personality inventory. [12] was developed based on Bhagavad-G?ta concept. A study,
38 [13] Quoting the existing, paper-pencil tests to measure spiritual and transpersonal construct is available. One
39 of the earliest available inventories was developed by Paramswaran. [14] And Uma, Lakshmi and Parameswaran.
40 [15] named as 'Guna Inventory" to assess the three Gunas. This inventory is based on the descriptions of the
41 characteristics of the three Gunas as outlined in the S?mkhya Karika and The Bhagavad-Gita.

42 Mohan and Sandhu, [16] have developed a Triguna personality inventory based on the Gita typology of
43 personality (TGPI) to measure the three Guans as separate dimensions with one being predominant. They found

5 TABLE-2 CONTENT VALIDITY BY EXPERTS (ITEMS AGREED BY EXPERTS)

44 that Sattva was distinct from Rajas and Tamas. Kapur et al. [17] attempted to provide a theoretical model of
45 infant temperament based on ancient Indian thought with special focus on the resilient or competent child. Most
46 of the items of the checklist are drawn from the items of the inventory developed by Marutham. [18] For adult
47 population, along with some items from the standard checklist used in studies on temperament in the west.

48 Marutham et al. [19] consider the three factors as independent of each other. The inventory is constructed on
49 views depicted in S?mkhya Karika and Bhagavad-Gita. Ayurveda Guna Inventory for Children (AGIC), [20] a
50 parent rating scale has been developed and standardized. This was developed on the basis of Samskrita verses
51 explained in 5 classical texts of Ayurveda and content validity of the 10 Ayurveda experts and 3 psychologists.
52 Which consisted 32, 20, 18 items respectively for Sattva, rajas and tamas scales.

53 Which was administered on 70 parents of the children in Maxwell public school, and was associated with good
54 reliability, which refers to the consistency of the scale and the items in the scale (Cronbach's alpha and split half
55 reliability which describes the analysis of the internal consistency, homogeneity of the items in the particular
56 scale was above 0.5) and construct validity (factor loading) for each items was above 0.5.

57 Effect of Integrated yoga module and yoga nidra on Trigunas has been discussed. ??20 ??21] ??22] A simple,
58 self-rating scale to assess manasika prakrti (constituiton) of the children according to Ayurveda concepts is not
59 available.

60 The aims and Objective of the present study were to develop a self -rating scale Sushruta Child Personality
61 Inventory(SCPI) to measure trigunas in children and to compare with parent rating scale AGIC (Ayurveda
62 Guna Inventory for Children) for the purpose of establishing ,Criterion related validity (which describes that the
63 particular scale measures what it supposes to measure), which refers to the usefulness of a test in closely relating
64 to other measures, of the scale, to assert, construct validity, which refers to whether a scale measures or correlates
65 with the theorized psychological construct, using factor analysis. And to determine d discriminant validity, which
66 refers to whether measurements that are supposed to be unrelated are, in fact, unrelated, by assessing correlation
67 between subscales.

68 Foot note: Prakrti corresponds to constitution or Personality. According to ?yurveda which is based on
69 S?mkhya Philosophy which emphasizes on the point that universe is governed by the prakrti and Purusha which
70 are the causal factors for the creation. prakrti is the unconscious principle and Soul is conscious principle. And,
71 is made up of Sattva,Rajas and Tamas gunas. Which are responsible for creation, maintenance and destruction
72 of the universe? And as well, forms the personality of the individual.

73 2 II.

74 3 Methods

75 The Sushruta Child Personality Inventory (SCPI) was developed based on one hundred three Sanskrit
76 characteristics from the five authoritative ancient Ayurveda texts (Table-1) describing characteristics typical
77 of 7 Sattvika, 6 Rajasika and 3 Tamasika prak?ti. Item reduction by researcher with the help of Ayurveda
78 expert ,was carried out by deleting the repeated items (described similarly in all texts and alike for different
79 types of Sattvika, Rajasika and Tamasika prakrti for example Sattvika prakrti person will be free from anger,
80 jealousy ,hatred is described in all texts and different types)

81 , ambiguous items (Which are impossible to educe for example Person with predominance of Rajas and Tamas
82 will have different tastes for food), and by selecting those items specifically suitable for children (For example
83 the Rajasika and Tamasika prakrti persons will be having wealth and very much interested in sex and engaged
84 in sex) (See Table-1).

85 4 Table-1 Texts and number of items

86 Table-1 gives the number of initial items (Samskrita) collected from five Ayurveda texts with a: Initial number
87 of items, b: Repeated (retained) number if items, c: Ambiguous items (removed) and d: Items not concerned
88 with children (removed) 84 items, translated into English utilizing Sanskrit dictionary, were presented to ten
89 ?yurveda experts, for content validity. They were asked to judge the correctness of each statement and to check
90 (1) whether any of the items were repeated or should be added?. (2) Whether the features of Sattva, Rajas, and
91 Tamas prak?ti selected for the scale are correct and (3) if the items constructed represented acceptable translation
92 of the Sanskrit in the original texts. Of these, 80 items which were agreed by all the experts were retained, out
93 of which, some of the items were changed and refined.

94 Based on the final Sanskrit statements 54 questions were framed by the researcher. The scale was again
95 presented to five ?yurveda experts and one psychologist, who reviewed the format of this scale and recommended
96 a two point scoring (0 and 1), which was adopted in the final SCPI. Suggestions in the phrasing of questions were
97 incorporated. After obtaining consensual validity on 54 questions, by all Ayurveda experts and psychologist, the
98 scale was finalized.

99 5 Table-2 Content validity by experts (items agreed by experts)

100 Table 2 gives the opinion of 5 Ayurveda experts and a psychologist.

101 The SCPI has 20 items for Sattva scale (Ascale) 18 items for Rajas scale (B-scale) and 16 items for Tamas
102 scale (C-scale) subscales.

103 **6 Table-3 Demographic data**

104 Table ??

105 **7 Data collection and analysis**

106 For testing up reliability and validity of the scale was administered on parents of the children who were the
107 students of New Generation National Public School in Bangalore, of both sexes with an age range of 8 to 12
108 years, of class of 3rd standard to 7th standard. The 54 items SCPI was answered by 200 children. The Criterion
109 Ayurveda Guna Inventory for Children AGIC) was administered on parents of 30 children of the age group of
110 8-12 years,for the purpose of cross-validation.

111 The statistical package for social sciences (SPSS-16.0) was used for data analysis

112 The item difficulty level was first assessed. The data was next analyzed for reliability. The split-half and
113 Cronbach's alpha tests were applied for reliabilityinternal consistency analysis. Discriminant validity was analyzed
114 by Pearson's correlation analysis. This was done to check the degree of association between Sattva, Rajas and
115 Tamas scale scores. Criterion related validity was assessed by Pearson's correlation between subscales of SCPI
116 and parent rating scale AGIC.

117 **8 III.**

118 **9 Results**

119 **10 a) Content validity**

120 Amongst, 6 experts who judged the items, content of all 54 questions were agreed by four to five experts.

121 **11 b) Item difficulty level**

122 This is defined as the presence of a said symptom expressed as the percentage of children who score positive to
123 that item 20-22. The results obtained from the administration of SCPI on 60 children showed 70 items that had
124 less coefficient than 0.9 (answered yes by the most) and more than 0.3 (answered yes by the less subject) were
125 retained.

126 **12 c) Internal consistency**

127 Refers to, the homogeneity of the items in the particular scale. An analysis of the data collected from 200
128 children showed the Cronbach's alpha (which is the particular formula based on variance to assess the internal
129 consistency) for S, R and T scales were 0.60, 0.64 and 0.61 respectively. The Split-Half reliability (which refers
130 to the correlation between first half and second half of the scale) for S, R and T scale were 0.62, 0.68 and 0.54
131 respectively. This shows that the three scales have good internal consistency. [24, 25, 26]

132 **13 d) Correlations**

133 The Sattva scale correlated negatively with Rajas and Tamas scales. While Rajas and Tamas scales correlated
134 positively.

135 14 **Table-4: Correlation among Sattva, Rajas and Tamas**
136 15 Table-4 gives (**) r-Pearson correlation values and signifi-
137 cience of correlation between subscales which is at 99%
138 confidence level. Sattva highly negatively correlated with
139 Rajas and Tamas, while Rajas correlated significantly pos-
140 itively with Tamas. Table: 5 Correlation of the subscales
141 of self-rating scale (Sushruta Child Personality Inventory)
142 with parent rating scale (Ayurveda Guna Inventory for Chil-
143 dren) Table -5 gives Pearson correlation of each subscales of
144 SCPI with subscales of AGIC (** p< 0.01). Subscales of SCPI
145 (Sattva, Rajas, Tamas) correlated highly positively with sub-
146 scales (Sattva, Rajas Tamas) of AGIC (parent rating scale)
147 **Table-6 Mean score differences between Boys and Girls in**
148 **trigunas Table -6 presents the mean scores of Boys and Girls**
149 **in each subscales. Showing high scores on**

150 Tamas in girls (98, for boys it is 7.6), high scores on Sattva and Rajas in Boys ??10.5 and 7.4, for girls it is 9.9
151 and 6.3) . Changes were significant p?0.05 (One sample t-test) IV.

152 16 Factor Analysis

153 Factor analytic co-efficient obtained for each items in; S-scale, R-scale, also T-scale were more than 0.3.
154 (Appendix-1)
155 Kaiser-Meyer-Olkin Measure of Sampling Adequacy for subscale item analysis was above 0.5, showing good
156 sampling adequacy.
157 V.

158 17 Discussion

159 This present study, has been carried out to develop and standardize a 54 item, self-rating, the Sushruta Child
160 Personality Inventory (SCPI), as an instrument to assess the mental personality (prakrti) of the children. It
161 was developed based on Sanskrit statements from five authoritative texts of Ayurveda. Though the scales are
162 standardized, they doesn't consider the comprehensive outlook of Ayurveda. [11][12][13][14][15][16][17][18][19] An
163 SCPI has the wide-ranging approach of analyzing trigunas according to the concepts of Ayurveda.

164 The reliability which refers to the consistency of the scale, was supported by Cronbach's Alpha coefficient and
165 Split-half analysis (analyzed through SPSS and it has particular formula based on variance of scores on items).
166 Similarly, validity (which refers to utility of the scale) was supported by Factor-analysis which was done to check
167 the association of the items with respective subscales was as good as parent rating scale.

168 [20] Cronbach's Alpha ranged from 0.60 to 0.64. This provided the evidence of homogeneity of items. While
169 for parent rating scale, Ayurveda Guna Inventory for Children (AGIC) it ranged between 0.55 and 0.80. However,
170 Split-half analysis was high as parent rating scale which ranged from 0.56 to 0.79, which is not been addressed
171 other earlier studies. [10][11][12][13][14][15][16][17][18] Factor loadings for each items in the subscales , ranged
172 from 0.37 to 0.74, 0.43 to 0.75, 0.39 to 0.79 0.53 to 0.85, while for parent rating scale. [21] It ranged from 0.50
173 to 0.80 and 0.40 (only one item) to 0.80 respectively for Sattva, Rajas and Tamas subscales. While for Vedic
174 Personality Inventory subscales it was 0.62 to 0.87, 0.57 to 0.80, and 0.55 to 0.76 respectively. This proved the
175 validity of the items in the subscales. (See Appendix-Table -7) Co-relation of Sattva with Rajas and Tamas was
176 highly negative, suggesting discriminant validity (See Table-4). Comparing to parent rating scale.20 correlation
177 of Sattva with Rajas and Rajas with Tamas has been improved (-0.77 to -0.85, 0.37 to 0.41) other studies have
178 not shown high correlation (10,11,12). While association of Rajas with Tamas was positive this was shown by
179 earlier study. [12].

180 The subscales of SCPI correlated highly ('r' above 0.9) positively with subscales of parent rating scale AGIC
181 (Ayurveda Guna Inventory for Children). ??20] suggesting concurrent validity(SeeTable-5).

182 The divergence in results (Cronbach's alpha, factor loadings) of self rating and parent rating scales, may be
183 because of discrepancy in prakrti of the children and religion, as parent rating scale (to check reliability) and
184 SCPI were administered in different schools. Ayurveda texts assert persons of one religion, one place will have
185 one prakrti.

186 The strength of the study is that it is the first attempt to develop and standardize a self-rating scale to measure
187 the manasika prakrti of the children, which is important aspect of maintaining one's health [2][3][4][5]. Ayurveda
188 emphasizes on maintenance of the health of a healthy person. Early measurement of Rajas and Tamas can reduce
189 the vulnerability to psychological disorders. By following diet regime and by particular Yoga module one can
190 move towards perfect health. Though published scales are available to assess the trigunas of an individual. [8][9]
191 They have been standardized for adult ale group. However, children require different mode of questions. Hence,
192 SCPI can be potentially used to identify the predominant manasika doshas in children, thus helps to plan suitable
193 régime, yoga at an early age to maintain the health.

194 **18 Limitations of the study**

195 Although, SCPI (Sushrura Child Personality Inventory) is a reliable, valid instrument, it has not addressed test-
196 retest reliabilty. Future studies could establish the norms by the study on more number of samples. Agreed all
197 questions except 5 th .12 th questions.

198 **19 VI.**

199 **20 Conclusions**

200 **21 (SUM)**

201 Agreed all questions except 2 nd ,4 th questions 4 (AHA)

202 Agreed for all items except 7 th ,10 th questions 5 (SHK)

203 Agreed for all items 6 th , 7 th , 8 th ,12 th ,13 th questions.

204 **22 (AAJ)**

Agreed for all items, suggested changes in the format of questions. Appendix-1 ^{1 2}

Figure 1:

1

An SCPI is reliable and valid instrument.

Researchers can adopt this instrument to assess the effect of Yoga, personality development programme, treatment for children about the age of 8 to 12 years.

VII.

Figure 2: Table 1 :

2

Experts	Comment
1 (RM)	Agreed all questions 5 th ,10 th questions
2 (RA)	

Figure 3: Table 2 :

205

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3

Sample	Boys	Girls	Total
Gender (Boys)	104	96	200
Age range	8-12 years	8-12 years	8-12 years
Mean± SD	10.13± 1.23	10.0±1.18	10.27±1.28

Figure 4: Table 3 :

4

Sattva vs Rajas	-	0.85**	P < 0.01
Sattva vs Tamas	-	0.77**	P < 0.01
Rajas vs Tamas		0.41**	P < 0.01

Figure 5: Table 4 :

5

Sc vs Sp	r = 0.97 **
Rc vs Rp	r = 0.91**
Tc vs Tp	r= 0.93**

Figure 6: Table 5 :

6

Sample	Sattva	Rajas	Tamas
Boys	10. 5	7. 4	7.6
Girls	9.9	6.3	9.8

Figure 7: Table 6 :

7

Legend-Table-7 gives factor loadings
 (correlation of each item with respective subscales)

Figure 8: Table 7 :

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