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

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Method: The 54-item Sushruta Child Personality Inventory(SCPI) was developed on the basis of translation of Sanskrit verses describing Sattva (A), Rajas(B) and Tamas prakrti (C) characteristics, described in Ayurveda texts and by taking the opinions of 6 Ayurveda experts and two psychologists. The scale was administered on children of the age group 8-12 years in New Generation National Public school.

Results: This inventory was named Sushruta Child personality inventory (SCPI) and showed high internal consistency. The Cronbach's alpha for A, B and C scales were 0.60, 0.64 and 0.61 respectively. And the Split-Half reliability for A,B and C scales were 0.62, 0.68 and 0.54 respectively. Factor validity coefficient scores on each items was above 0.3 on Sattva , Rajas and Tamas scale.

Keywords : *triguna, prakriti, sattva, rajas, tamas, ayurveda.*

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SP Suchitra [α] & HR Nagendra [σ]

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The result of SCPI was compared with parent rating scale Ayurveda Guna Inventory for Children (AGIC). Subscales of SCPI correlated highly positively (above 0.9) with subscales of AGIC, which was applied to check validation of SCPI with respect to AGIC.

Conclusions: The Manasika prakrti (Sattva, Rajas and Tamas) of the children can be measured reliably utilizing Sushruta Child Personality Inventory (SCPI). Correlation with parent rating scale suggested criterion –related validity.

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I. Introduction

According to western psychology, traits determine individual's behavior. While Indian philosophy and Indian psychology proclaim individual's character based on predominance of any of the Trigunas (Sattva, Rajas, Tamas). Sattva refers to balance, tranquility, and purity. Rajas refers to action, passion. Tamas refers to laziness, delusion. [1]

Āyurveda considers Rajas and Tamas as mānasika doshas, which are responsible for the manifestation of neurosis and psychosis. Classical texts of Āyurveda describes 16 types of mental personalities (seven types of Sattva, six types of Rajas, three types of Tamas) determined by pre dominance of each gunas. [2-7]. Imbalance of Rajas and Tamas can be counter-acted by increasing Sattva (Satvavajaya) by Yoga as also diet regime.

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

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

Mohan and Sandhu, [16] have developed a Triguna personality inventory based on the Gita typology of personality (TGPI) to measure the three Guans as separate dimensions with one being predominant. They found that Sattva was distinct from Rajas and Tamas. Kapur et al. [17] attempted to provide a theoretical model of infant temperament based on ancient Indian thought with special focus on the resilient or competent child. Most of the items of the checklist are drawn from the items of the inventory developed by Marutham. [18] For adult population, along with some items from the standard checklist used in studies on temperament in the west.

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

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

Effect of Integrated yoga module and yoga nidra on Trigunas has been discussed. [20-22]

A simple, self-rating scale to assess manasika prakrti (constituiton) of the children according to Ayurveda concepts is not available.

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

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

II. Methods

The Sushruta Child Personality Inventory (SCPI) was developed based on one hundred three Sanskrit characteristics from the five authoritative ancient Ayurveda texts (Table-1) describing characteristics typical of 7 Sattvikaa, 6 Rajasika and 3 Tamasika prakṛti. Item reduction by researcher with the help of Ayurveda expert ,was carried out by deleting the repeated items (described similarly in all texts and alike for different types of Sattvika, Rajasika and Tamasika prakrti for example Sattvika prakrti person will be free from anger, jealousy ,hatred is described in all texts and different types) , ambiguous items (Which are impossible to educe for example Person with predominance of Rajas and Tamas will have different tastes for food), and by selecting those items specifically suitable for children (For example the Rajasika and Tamasika prakrti persons will be having wealth and very much interested in sex and engaged in sex) (See Table-1).

Table-1 Texts and number of items

Table-1 gives the number of initial items (Samskrita) collected from five Ayurveda texts with a: Initial number of items, b: Repeated (retained) number if items, c: Ambiguous items (removed) and d: Items not concerned with children (removed)

84 items, translated into English utilizing Sanskrit dictionary, were presented to ten Āyurveda experts, for content validity. They were asked to judge the correctness of each statement and to check (1) whether any of the items were repeated or should be added?. (2) Whether the features of Sattva, Rajas,and Tamas prakṛti .selected for the scale are correct and (3) if the items constructed represented acceptable translation of the Sanskrit in the original texts. Of these, 80 items which were agreed by all the experts were retained, out of which, some of the items were changed and refined.

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

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

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

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

Table-3 Demographic data

Table-3 gives mean and standard deviation of demographics. Out of 200 children 104 were boys, 96 were girls, aged around 8-12 years. Mean age being 10.27. Students of 3rd standard to 7th standard, mean education being 4.65.

Data collection and analysis

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

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

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

III. Results

a) Content validity

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

b) Item difficulty level

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

c) Internal consistency

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

d) Correlations

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

Table-4: Correlation among Sattva, Rajas and Tamas

Table-4 gives (**) r-Pearson correlation values and significance of correlation between subscales which is at 99% confidence level. Sattva highly negatively correlated with Rajas and Tamas, while Rajas correlated significantly positively with Tamas.

Table: 5 Correlation of the subscales of self-rating scale (Sushruta Child Personality Inventory) with parent rating scale (Ayurveda Guna Inventory for Children)

*Table -5 gives Pearson correlation of each subscales of SCPI with subscalesof AGIC (** $p < 0.01$).Subscales of SCPI (Sattva,Rajas,Tamas) correlated highly positively with subscales (Sattva, Rajas Tamas)of AGIC(parent rating scale)*

Table-6 Mean score differences between Boys and Girls in trigunas

Table -6 presents the mean scores of Boys and Girls in each subscales. Showing high scores on 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 and 6.3) . Changes were significant $p<0.05$ (One sample t-test)

IV. Factor Analysis

Factor analytic co-efficient obtained for each items in; S-scale, R-scale, also T-scale were more than 0.3. (Appendix-1)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy for subscale item analysis was above 0.5, showing good sampling adequacy.

V. Discussion

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

The reliability which refers to the consistency of the scale, was supported by Cronbach's Alpha co-efficient and Split-half analysis (analyzed through SPSS and it has particular formula based on variance of scores on items). Similarly, validity (which refers to utility of the scale) was supported by Factor–analysis which was done to check the association of the items with respective subscales was as good as parent rating scale. [20] Cronbach's Alpha ranged from 0.60 to 0.64. This provided the evidence of homogeneity of items. While for parent rating scale, Ayurveda Guna Inventory for Children (AGIC) it ranged between 0.55 and 0.80. However, Split-half analysis was high as parent rating scale which ranged from 0.56 to 0.79, which is not been addressed other earlier studies.[10-18] Factor loadings for each items in the subscales , ranged 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 to 0.80 and 0.40 (only one item) to 0.80 respectively for Sattva,Rajas and Tamas subscales. While for Vedic 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 validity of the items in the subscales. (See Appendix-Table-7)

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Co-relation of Sattva with Rajas and Tamas was highly negative, suggesting discriminant validity (See Table-4). Comparing to parent rating scale.20 correlation of Sattva with Rajas and Rajas with Tamas has been improved (-0.77 to -0.85, 0.37 to 0.41) other studies have not shown high correlation (10, 11, 12). While association of Rajas with Tamas was positive this was shown by earlier study. [12].

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

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

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

Limitations of the study

Although, SCPI (Sushrura Child Personality Inventory) is a reliable, valid instrument, it has not addressed test-retest reliabiltiy. Future studies could establish the norms by the study on more number of samples.

VI. Conclusions

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. Acknowledgment

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Table 1 : Texts and number of items

Text	*Sattva prakrti*				*Rajas prakrti*				*Tama prakrti*			
	a	b	c	d	a	b	c	d	a	b	c	d
Caraka Samhita	31	0(31)	2	2	22	0(22)	2	2	11	0(11)	2	1
Sushruta samhita	15	3(12)	2	0	15	3(12)	2	0	9	0(9)	0	0
Astanga samgraha	5	5(0)	0	0	4	4(0)	0	0	4	4(0)	0	0
Astanga hridaya	5	5(0)	0	0	4	4(0)	0	0	4	4(0)	0	0
Kashyapa Samhita	35	35(0)	0	0	25	25(0)	0	0	15	15(0)	0	0
Total	91	48(43)	4	2	70	36(34)	2	2	43	23(20)	2	1

Table 2 : Content validity by experts(items agreed by experts)

Experts	Comment
1 (RM)	Agreed all questions 5^{th} ,10^{th} questions
2 (RA)	Agreed all questions except 5^{th} .12^{th} questions.
3 (SUM)	Agreed all questions except 2^{nd} ,4^{th} questions
4 (AHA)	Agreed for all items except 7^{th} ,10^{th} questions
5 (SHK)	Agreed for all items 6^{th}, 7^{th}, 8^{th} ,12^{th} ,13^{th} questions.
6 (AAJ)	Agreed for all items, suggested changes in the format of questions.

Table 3 : Demographic data

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

Table 4 : Correlation among Sattva, Rajas and Tamas

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

Table 5 : Correlation of the subscales of self-rating scale (Sushruta Child Personality Inventory) with parent rating scale (Ayurveda Guna Inventory for Children)

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

Table 6 : Mean score differences between Boys and Girls in trigunas

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

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Appendix-1

Table 7 : Factor loadings for each items

Sattva	Loadings
s1	.427
s2	.430
s3	.674
s4	.576
s5	.529
s6	.567
s7	.745
s8	.625
s9	.437
s10	.388
s11	.589
s12	.559
s13	.409
s14	.658
s15	.547
s16	.711
s17	.548
s18	.511
s19	.374
s20	.626

Rajas	Loadings
r1	.753
r2	.650
r3	.581
r4	.788
r5	.592
r6	.558
r7	.748
r8	.546
r9	.485
r10	.684
r11	.439
r12	.575
r13	.566
r14	.676
r15	.687
r16	.629
r17	.565
r18	.652

Tamas	Loadings
t1	.793
t2	.707
t3	.665
t4	.560
t5	.450
t6	.418
t7	.486
t8	.407
t9	.601
t10	.382
t11	.527
t12	.620
t13	.568
t14	.611
t15	.391
t16	.541

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

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