

**DEMOGRAPHIC STUDY TO EVALUATE PHYSIOLOGICAL
RELATION BETWEEN IQ AND RAKTA SARATA****Dr. Durgesh Nandini Sharma¹ and Dr. Brahm Dutt Sharma^{*2}**

¹M.D. Scholar, P.G. Department of Sharir Kriya, National Institute of Ayurveda, Jaipur.
Rajasthan, India.

^{*2}Asst. Professor, Department of Kaumarbhritya, Shri Shiridi Sai Baba Ayurveda College and
Hospital, Renwal, Jaipur, Rajasthan, India.

Article Received on
20 April 2016,
Revised on 10 May 2016,
Accepted on 31 May 2016
DOI: 10.20959/wjpr20165-6445

Corresponding Author*Dr. Brahm Dutt Sharma**

Asst. Professor, Department
of Kaumarbhritya, Shri
Shiridi Sai Baba Ayurveda
College and Hospital,
Renwal, Jaipur, Rajasthan,
India.

ABSTRACT

Sara means the excellence and the purity of virtuous state of *Dhatu* and mind. By assessing the *Sara* one can identify the present status of health and intellectual properties of an individual. Therefore, considering these prospects a demographic study was carried with 100 (16-40 years of age group) *Rakta Sara Purushas*. In the study Subjective parameters of the *Rakta Sarata* were converted in the objective parameters which can be used to grade *Rakta Sarata* in *Pravara*, *Madhyam* and *Avara* categories. Wechsler Adult intelligence scale online test was used for IQ assessment in *Rakta Sara Purush*. In results *Rakta Sara* persons were found with good IQ level, so we can say that *Rakta Sara Purushas* are gifted with good IQ and excellent academic performances means they are *Budhhiman* or *Medavi*.

Considering these facts this study can be used as model for standardization of other *Saras* where examination is based on subjective parameter.

KEYNOTES: *Sara Pariksha*, *Rakta Sarta*, WAIS and *Medha*.

INTRODUCTION

Sara is a good mirror to assess properties and function of *Dhatus*. It is one among *Dashavidha Pareeksha* which is done to understand life span of an individual, degree of strength possessed by person and to rule out morbidity.^[1] *Sara* means the excellence and the purity of virtuous state of *Dhatu* and mind.^[2] By assessing the *Sara* one can identify the present status of health and intellectual properties of an individual.

Jeevana^[3] is the main function of *Rakta Dhatu*. The efficiency of *Rakta Dhatu* is known by assessing the *Rakta Sarata*. According to *Charaka* a *Rakta Sara* person have bright red and lustrous elegant appearance of the ears, eyes, face, tongue, nose, lips, palm and sole of foot, nails, forehead and genitals. These persons are endowed with happiness, elevated or best intelligence, mental tranquillity and delicacy or tenderness to the person.^[4]

It is obvious from the above discussion that the views of ancient *Acharyas* about the detection of status of *Rakta* (blood) directly in the persons were very scientific. They mentioned the organs especially the *Akshi* (palpebral conjunctiva), *Jihva* (tongue), *Mukha* (mucus membrane of oral cavity), *Oshtha* (lips), *Talu* (palate), *Panitala* and *Padatala* (palms and soles with their creases) in the physical examination of *Rakta Sara*.

In Monnier William the *Medha* is understood by the meaning mental vigor or power, intelligence or prudence, wisdom, retention of knowledge for long period residue of which can be further expressed in proper time.

Among the seven *Dhatus* the best qualities of *Rasa*, *Rakta*, *Mamsa*, *Sukra* and *Oja* improve the functions of the faculties of *Medha*. *Rasa Dhatu* nourishes the *Buddhi* whereas the best quality of *Rakta* is responsible for the promotion of the *Medha*. *Mamsa sarata* indicates strong *Dhrti*, likewise the *Sukra* of best quality is stated to strengthen the same i.e. *Dharana Shakti* and *Dhrti*.^[5] *Ojas* has direct relationship with all the faculties of *Buddhi*, as it is held responsible for their nourishment.^[6]

Wechsler (1944) states that the “intelligence is an aggregate or global capacity of an individual to act purposefully to think rationally and to deal effectively with his environment.” There are a number of different methods which purport to measure intelligence, the most famous of which is perhaps the “IQ”, or 'Intelligence Quotient' test. The modern day “IQ” test measures a variety of different types of ability such as verbal, mathematical, spatial, memory and reasoning.

Ayurveda is a vast storehouse of knowledge relevant to human health, disease, medicines and general health-care. However, mutual incomprehensibility of the terms and concepts has been a major impediment in meaningful dialogue between modern scientific medicine and *Ayurveda*. *Rakta Dhatu* can be compared with blood. An indirect relation between intelligence or *Medha* and *Rakta Sara* is well established in *Ayurveda*. At this time if a

method is developed or reintroduce from the treasure of *Ayurveda*, it will be a boon in the field of *Ayurvedic* physiology.

AIMS AND OBJECTIVES OF STUDY

The present research study was planned to conduct with following main objectives.

1. Demographic survey regarding *Rakta Sara Purush*.
2. To determine more clear vision on *Dhatu Sarata* especially on *Rakta Sarata*.
3. To establish a relation between *Rakta Sarata* and Intelligence or *Budhhimata*.

SELECTION OF CASES

The study was conducted on 522 peoples randomly selected from O.P.D/I.P.D., all college students, staff of National Institute of Ayurveda, Jaipur and Shri Shiridi Sai Baba Ayurveda College & Hospital, Renwal, Jaipur (Rajasthan) and people living around the colleges. 100 *Rakta Sara* individuals were found fit for further detailed survey study.

Inclusion Criteria	Exclusion Criteria
1. Peoples aged between 16 to 40 years of either sex.	1. Peoples below 16 and above 40 years of age.
2. Healthy individual.	2. Person with severe or chronic diseases.
3. Person willing to participate in the study	3. Person with any stress or cognition deformity.

ASSESSMENT CRITERIA

(1) SARA PAREEKSHA

Phase 1: A standard short *Sara Pareekshan* format was prepared to find out *Rakta Sara* people among all eight *Sara* peoples (522).

Phase 2: A detailed *Sara Pareekshan* format was prepared to categorize *Rakta Sarata* in *Pravara*, *Madhyam* and *Avar* types (100).

To fulfill the above aims, a preformat was designed incorporating the sign and symptoms of *Rakta Sara* persons as described in *Samhitas* and the hematological laboratory parameters. Questionnaires of the survey proforma were divided into many parts like, history taking, physical examination by visual analogue scale, psychological assessment, metabolic or functional assessment and also the laboratory assessment of the blood indices. These parameters of the survey were based on *Sara Lakshanas* described in *Charaka Samhita Vimana Sthana*.^[9] According to *Charaka*, a *Rakta Sara* person has following characteristics

in him – *Sukham, Uddhatam, Medha, Manasvita, Saukumaryata, Anatibala, Aklesh Sahishnuta, Ushna Asahishnuta* and the four parameters like unctuousness (*Snigdhatata*), redness (*Rakta Varnta*), lustureness (*Shrimad*), and radiance (*Bhrajishnuta*) are present in 9 body parts of a *Rakta Sara* person namely, Earpinna (*Karna*), eyes (*Akshi*), face (*Mukh*), tongue (*Jihwa*), nose (*Nasa*), lips (*Oshtha*), palms and soles (*Pani-Paad Tal*), nails (*Nakha*), forehead (*Lalaat*). On the basis of these features all *Rakta Sara* individuals were divided into three catagories i.e *Prava Sara, Madhyam Sara and Avar Sara*.

(2) IQ ASSESSMENT

Wechsler Adult intelligence scale online test was used for IQ assessment in *Rakta Sara Purush*. In this online test there was a 20 questions format from different fields. For gaining maximum marks or IQ a person had to solve those questions in minimum time and with correct answer. After submitting the last 20 no. question they got their IQ. Subjects were categorized in below mention groups

Categories	IQ Score
Below Average	70-85
Average	86-115
Above Average	116-130
Gifted	131-145
Genius	>145

ANALYTICAL AND STATISTICAL METHOD

Observations documented during study were analyzed and findings were evaluated by using statistical analysis to establish efficacy. Pearson correlation coefficient r was evaluated for relation between different parameters of survey study. For statistical analysis Graph pad Prism 6 software was used.

OBSERVATIONS AND RESULTS

In phase first study gross level survey was done by a rapid assessment survey Performa of *Sara Parikshan*. The survey area were National Institute of Ayurveda, Jaipur and Shri Shiridi Sai Baba Ayurveda College, Renwal, Jaipur. 520 individuals were included in the study out of them 100 were found suitable for phase second study.

Table No. 1: Showing the no. of male and females in the total study of *Rakta Sara Purush* (N=100).

S.No.	Gender	No. of Subjects	%
1	Male	61	61
2	Female	39	39

Table No. 2: Highlighting the Percentage marks of Secondary and Senior Secondary education in survey group (N=100).

S. No.	%	Secondary Exam		Senior Secondary Exam	
		No.	%	No.	%
1	51-60	8	8	7	7
2	61-70	15	15	24	24
3	71-80	37	37	40	40
4	81-90	34	34	27	27
5	91-100	6	6	2	2

Table No. 3: Demonstrating the *Prakriti* wise distribution of survey students.

S. No.	Prakriti	No. of Subjects	%
1	VP	37	37
2	PK	44	44
3	KV	19	19

Table No. 4: Showing the distribution of Visual Analogue Scale in survey subjects.

S. No.	VAS	No. of Subjects	%
1	30-40	6	6
2	41-50	14	14
3	51-60	61	61
4	61-70	19	19

Table No. 5: Showing the distribution of IQ Score according to Wechsler Adult Intelligence Scale online test in survey subjects (N=100).

S. No.	IQ	Grade	Male		Female		Total	%
			No.	%	No.	%		
1	70-85	Below Average	6	9.83	2	5.12	8	8
2	86-115	Average	41	67.21	23	58.97	64	64
3	116-130	Above Average	14	22.95	12	30.76	26	26
4	131-145	Gifted	0	0	2	5.12	2	2
5	>145	Genius	0	0	0	0	0	0
Total			61	100	39	100	100	100

Table No. 6: Showing relation between *Rakta Sarta* and IQ in survey study.

S.No.	Features	Pearson r	95% Confidence interval	P value	Significance
1	Rakta Sarta	0.3001	0.1102 to 0.4689	0.0024	Significant
2	IQ				

DISCUSSION

Sex: In phase 2 survey study of *Rakta Sara Purush* there were 61 males and 39 females. It may be because of same ratio in the total survey study there were 309 (59.42%) males and 211 (40.57%) females. Second cause may be the variability in Hb status of male and females due to estrogen predominance in females which produce inhibitory effect on secretion of erythropoietin and androgen predominance in male which stimulates erythropoietin secretion.^[7]

Percentage marks: It was found in the survey study in secondary school examination maximum students were found between 71-80 % marks group that were 37% followed by 34% in 81-90% marks group. The region may be excellent memory power (*Medha / Budhhimatta*) in *Rakta Sara Purushas*.^[8]

Prakriti: In this survey study maximum people were found with *Pitta-Kapha Prakriti* that was 44%. Reason is That *Kapha Prakriti Purush* is called *Vidhyavant*⁹, *Dhratiman*¹⁰ and *Pittaj Prakriti Purush* is called *Madhavi*.^[11]

VAS: In this study in visual analogue scale maximum were found between 51-60 score that were 61% followed by 19% in between 61-70 score. 14% people were found between 41-50 score followed by 6% in between 30-40 score group. If we critically analyze the *Shloka* for *Rakta Sara*, we will find that it is judiciously divided in two parts. In first part the parameters which physician has to assess by examination. To assess these parameters VAS is a standardized scale in form of questionnaires. A subject visually has as much characteristics of *Rakta Sara* he will obtain high VAS score.

IQ Score: In this survey study IQ examination was done by Wechsler Adult Intelligence scale online test. In that result maximum were found with average IQ (86-115) in 64 (41 males and 23 females) subjects followed by above average IQ (116-130) in 26 (14 males and 12 females). The modern day "IQ" test measures a variety of different types of ability such as verbal, mathematical, spatial, memory and reasoning. The test is then 'pre-tested' on a group of people representative of the wider population. Then it's graded so that the majority of people will be getting between 90-110. When graphed, this is a curve in the classic 'bell' shape where most people are distributed around the average intelligence (or intelligence score) and few people are at the extreme ends of low and high intelligence. In our study we found 26% peoples have above average IQ after average (64%). It proves the *Budhhimata* of *Rakta Sara Purush*.^[12] There is no significant difference in learning between sexes. Still it is

generally observed that boys are superior in motor activities involving the exercise of strong gross muscles whereas girls excel in skills requiring delicate coordination of smaller muscles and strict attention to details. In regard to verbal learning, girls are superior in word fluency, reasoning and rote memory and boys in spatial and verbal meanings. Studies in vocational aptitude tests have shown that boys obtain superior scores in mechanical aptitudes and in science and mathematics whereas girls obtain higher scores in clerical aptitude and language skills.

Rakta Sara and IQ: In observational comparison of *Rakta Sarta* and IQ, Values were Pearson correlation coefficient $r = 0.3001$ with 95% confidence interval 0.1102 to 0.4689 and P value 0.0024 means Significant result. It shown that *Rakta Sarta* and IQ had a significant relationship. Cause is clear that *Rakta Sara Purushas* are *Medhavi (Budhhiman)*.^[13] Other cause may be strong Bala in *Rakta Sara Purush*^[14] by which they stay away from diseases and it is well known that “healthy mind lives in healthy body”. About the *Medha, Gangadhara* has said *Vipulama Madham* i.e. great intellect.

CONCLUSIONS

- Physical character like *Rakta Varnata, Snightata* are more reliable to access *Rakta Sarta* than psychological characters like *Sukha, Klesh Asahishnuta, Manasvita, Anatibala* etc.
- Visual analogue Scale is fit for assessing the physical characteristics of *Rakta Sara Purush*.
- *Rakta Sara* persons have good immunity or disease free State means *Arogyavan* and *Sukhi*.
- *Rakta Sara Purushas* are gifted with good IQ and excellent academic performances means they are *Budhhiman* or *Medavi*.
- This study can be used as model for standardization of other *Saras* and other areas of *Ayurveda* where examination is based on subjective parameters.

REFERENCES

1. Shastri KN, Chaturvedi GN, CharakSamhita, reprint ed. Varanasi: Chaukambha Bharati Academy, 2001; 771.
2. Acharya YT. Charakasamhita by Agnivesa with Ayurveda deepikateeka of Chakrapanidatta. Reprint ed. Varanasi: Chaukhambha Orientalia, 2011; 278.

3. Paradakara HSS, Ashtangahrudaya with Sarvangasundara commentary of Arunadutta and Ayurvedarasayana commentary of Hemadri. 9th ed. Varanasi (India): Chaukambha Orientalia, 2005; 183.
4. Vaidya Bhagwan Dash. Agnivesa's Caraka Samhita based on Cakrapanidatta's Ayurveda Dipika. Reprint ed. Varanasi. The chaukhamba sanskrit series, 2005; 336.
5. Shri Satya Narayan Shastri (Part 1) Charak Samhita with elaborated Vidhyotini Hindi commentary Viman Sthan Rogbhishagajitiya Adhyaya; chapter 8 verse 104-108; Varanasi Chukhambha Bharty academy 2008; 776.
6. Kaviraja Ambikadutta Shastri (Part 1) Shushruta Samhita with elaborated Ayurveda Tatva Sandipika Sutra Sthan Doshdhatumalakshyavidhivigyanaya Adhyaya; chapter 15 verse 19-22; Varanasi Chukhambha Sanskrit Samsthan 2009; 78-79.
7. A Text book of Practical Physiology by C.L. Ghai; 8th Edition; Jaypee publications; 39.
8. Laxmidhar dwedi Part 1 Charak Samhita with Tatva Prakashni Hindi commentary on Ayurveda Dipika; Viman Sthan Rogbhishagajitiya Adhyaya; chapter 8 verse 104; Varanasi Chukhambha Krishnadas academy 2008; 923.
9. Laxmidhar dwivwadi (Part 2) Charaka Samhita: Chakrapani commentary; Vimana Sthana; Rogbhishagajitiya Adhyaya; Chapter 8 verse 96 Chaukhamba Krishnadas academy, Varanasi; reprint, 2008; 919.
10. Kaviraja Ambikadutta Shastri (Part 1) Shushruta Samhita with elaborated Ayurveda Tatva Sandipika Sharir Sthan Garbhvyakaran Sharir Adhyaya; chapter 4 verse 71; Varanasi Chukhambha Sanskrit Samsthan 2009; 51.
11. Kaviraja Ambikadutta Shastri (Part 1) Shushruta Samhita with elaborated Ayurveda Tatva Sandipika Sharir Sthan Garbhvyakaran Sharir Adhyaya; chapter 4 verse 71; Varanasi Chukhambha Sanskrit Samsthan 2009; 50.
12. Shri Satya Narayan Shastri (Part 1) Charak Samhita with elaborated Vidhyotini Hindi commentary Viman Sthan Rogbhishagajitiya Adhyaya; chapter 8 verse 104; Varanasi Chukhambha Bharty academy 2008; 776.
13. Shri Satya Narayan Shastri (Part 1) Charak Samhita with elaborated Vidhyotini Hindi commentary Viman Sthan Rogbhishagajitiya Adhyaya; chapter 8 verse 104; Varanasi Chukhambha Bharty academy 2008; 776.
14. Shri Satya Narayan Shastri (Part 1) Charak Samhita with elaborated Vidhyotini Hindi commentary Sutra Sthan Tasyashitiya Adhyaya; chapter 24 verse 4; Varanasi Chukhambha Bharty academy 2008; 443.