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Original Article

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Estimation of IQ in the Young Population with Pre-Determined Prakriti: A Project-Based Article from the Insight of First-Year Ayurveda Undergraduate

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ABSTRACT

Background: The intelligence quotient (IQ) serves as a purpose in predicting intelligence status. It is a measure of a person's reasoning ability. According to Ayurveda, *Buddhi* (intelligence) is affected by *Prakriti* (body constitution) which depends on the predominance of *Tridosha* and *Triguna*. There is a paucity of studies to examine their association. The study was designed to examine variation in IQ as per *prakriti*; and to find out their relationship with primary (*Anubandhya*) and secondary (*Anubandha*) doshas with intelligence in young adults.

Methodology: Students (n=155) of age 19-25 years from different Ayurveda colleges of Hanuman Nagar zone Nagpur, were considered for the study, they responded to a questionnaire to examine *prakriti* first and thereafter assess IQ using WAIS (Wechsler Adult Intelligence scale) IQ test. Separate regression analyses were done to look for associations. **Observation & Results:** Out of 155 students, 3 students were of *vata prakriti*, 10 were of *pitta prakriti*, 30 were of *vata-pitta*, 88 were of *pitta-kapha*, 19 were of *vata-kapha*, 5 were of *tridosha*. No students were of *kapha prakriti*. Based on categories of IQ, the superior IQ score was found in *pitta-kapha* group and i.e. 9 students and extremely low IQ was also found in *pitta-kapha* i.e. in 4 students. **Conclusion:** Most of the students were observed with average IQ level. Group of *prakriti* dominating *pitta kapha dosha* were observed with all the variabilities of IQ levels.

Keywords: Ayurveda undergraduates, Intelligence quotient, *Prakriti*, WAIS test.

INTRODUCTION

Ayurveda is widely acknowledged as the world's oldest system of health science. It is a five-thousand-year-old

Vedic Science of Life. Ayurveda, like other systems of medicine, has its own unique features. It lays more

emphasis on the promotion of positive health and the prevention of diseases. Ayurveda has distinctions of determining prakriti for every individual since no one set of characteristics would apply to all. Each one of us is born with a *doshic* 'fingerprint', a unique set of traits formed by the relative strengths of the doshas in our constitution. Not only our physiology but our personality also evolves from this *doshic* make-up. It determines the unique way in which each one of us responds physically, mentally, and emotionally to our surrounding environment.^[1]

The entire science of the Ayurvedic system of medicine is based on the three basic humors viz, the *Vata*, *pitta*, and *kapha*. The psychosomatic approach of Indian medicine is best illustrated by the concept of '*Deha Prakriti*' and its application to almost all problems concerned with life in health and disease.^[2] In *Deha Prakriti* there are many points, that cover the physical and functional characteristics of the human body. But there are mental characteristics also which vary with the *Deha prakriti* in different persons. The Ayurvedic concept of *Deha Prakriti* is complex and needs a comprehensive approach toward the structural, functional, and psychological aspects. Because of this, an attempt is being made in this to work-study *deha prakriti* with specific relation to *buddhi* or intelligence, one of the factors helpful in determining *prakriti*.

Intelligence Quotient (IQ):

It is the measure of intelligence derived as a total score from a set of standardized tests or subtests designed to assess human intelligence. There are various tests available for the assessment of IQ, common tests being the Wechsler Adult Intelligence Scale (WAIS), Wechsler Intelligence Scale for Children (WISC), Stanford-Binet Intelligence Scale, etc.

Low Intelligence Quotient: A numerical value that refers to the extent to which an individual's score on an intelligence test departs from the average for other people of the same.^[3]

OBJECTIVES

Primary Objectives

To assess intelligence scores in the persons of different *deha prakriti* using standard psychological tests, based on the WAIS (Wechsler Adult Intelligence Scale) test. It includes questions like working memory, processing speed, and verbal comprehension. The test was conducted in the age group 19-25 yrs.

Secondary Objectives

To find the association between *deha prakriti* and intelligence score.

METHODOLOGY

The NCISM has introduced a new syllabus for the undergraduate students of BAMS's first year. It includes various innovative activities for them in the curriculum like periodic tests, and projects throughout the year with an allocation of marks. In this context, one such student in the first year came up with the idea of assessing the intelligence quotient of the peers with pre-determined prakriti analysis under the subject kriya sharir.

This Project was like a survey conducted among the Ayurveda undergraduates of different colleges in Nagpur City, Maharashtra. Ayurvedic colleges from the Hanuman Nagar, zone were selected. The link from *Ayurved vyaspeeth* for *prakriti* analysis^[4] was circulated among the two colleges' students of age group 19-24 yrs. Amongst them, 258 students' replies were recorded.

Study Design – Cross-sectional observation study

Study setting – The study was conducted in our institution as well as other institution.

Duration of study – 1-month

Inclusion criteria – Healthy individuals of age group 19-25 years of either gender

Exclusion criteria – Individuals showing chronic diseases, congenital anomalies related to the brain, individuals having addiction such as alcohol, etc

Sample Size Calculation - 258 students of Ayurvedic colleges of hanuman nagar zone were considered for sample size calculation and calculated in the OpenEpi software with a confidence interval of 95%.

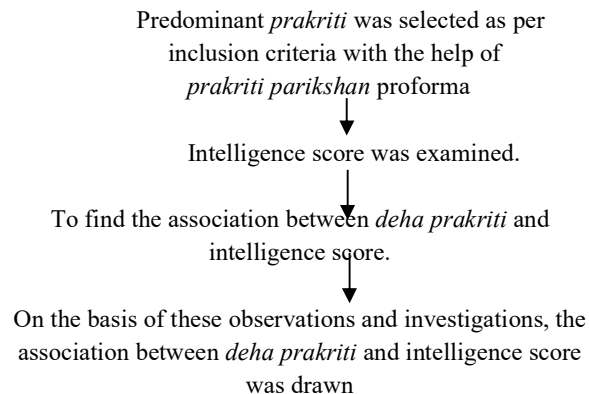
Sample size(n) – 155^[5]

Preparation of questionnaire

A questionnaire was prepared based on the WAIS (Wechsler Adult Intelligence Scale) IQ test.^[6] A Google form-based questionnaire was circulated among 155 students, and replies were recorded.

The participants were allowed to willingly fill up the sent Google form within a pre-set time. The responses from a total of 155 participants got recorded and arranged into an excel-sheet. Statistical analyses were done and the data was presented accordingly.

Plan of work -



Operational definition –

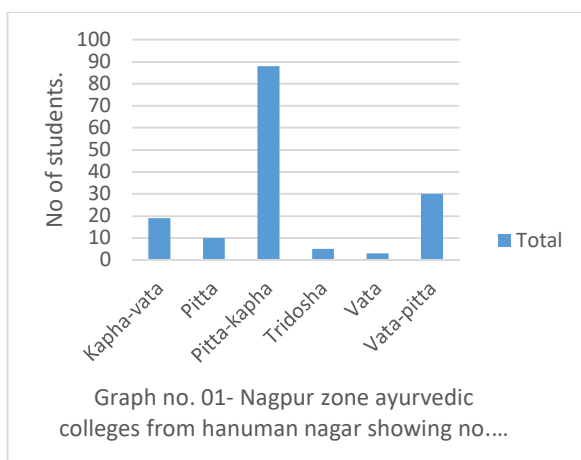
Prakriti (phenotype-based Ayurveda constitution) is an individual's uniqueness and it deals with somatic and psychological development. [7]

The predominance of *prakriti* is decided in a score of more than 65 % in the *prakriti* examination proforma.

WAIS (Wechsler Adult Intelligence Scale) test includes questions like, working memory, processing speed, verbal comprehension.

RESULTS AND OBSERVATIONS

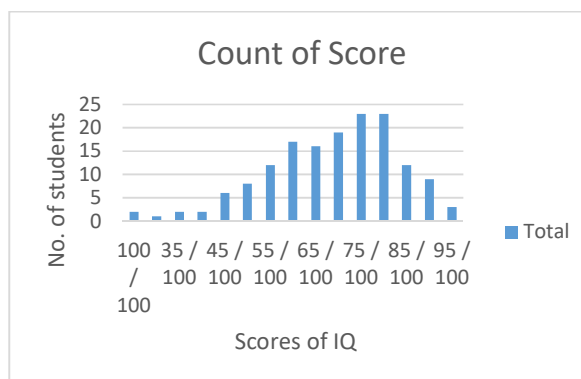
Out of a total of 155 students from two colleges of Hanuman Nagar zone, 3 students were of *vata prakriti*, and 10 students were of *pitta prakriti*. There were no students of *kapha prakriti*. Likewise, students with *dvidoshaja prakriti* were found. 30 students were of *vata-pittaj prakriti*, *pitta-kaphaj prakriti* being maximum, i.e. 88, and *vata-kaphaj prakriti* were least i.e. 19. 5 *Tridoshaja prakriti* students were found.



Based on *prakriti*

Graph no. 01 - Nagpur zone ayurvedic colleges from hanuman nagar showing the number of students with different *deha prakriti*.

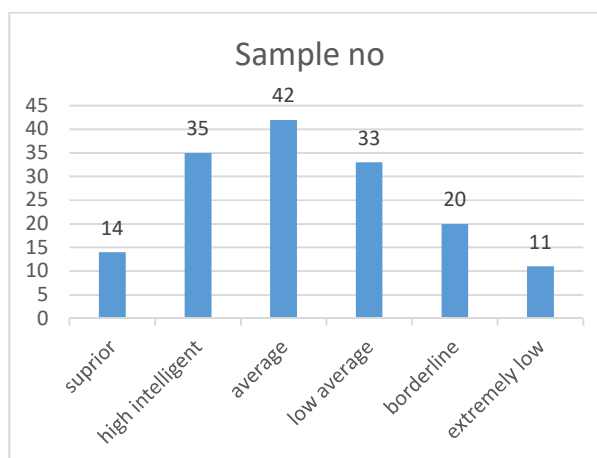
The scores recorded by the students were categorized into five grades. They were superior, highly intelligent, average, low average, borderline, extremely low. The scores range of 90-100 comes under superior IQ, the score of range 80-89 comes under high intelligence, score range of 70-79 comes under average IQ, score range of 60-69 comes under low average, score range of 50-59 comes under borderline and score range of 40-49 comes under extremely low IQ.



Based on IQ

Graph no. 02- Grades of IQ based on scores shown by the number of students.

Amongst all the students, 14 students showed superior IQ, 35 students showed high intelligence IQ, 42 students showed average IQ, 33 students showed low average IQ, 20 students showed borderline IQ and 13 students showed extremely low IQ. This data also showed that the maximum number of students scored under good IQ ranges that is high intelligence, average, and low average grades.



Based on the correlation between *prakriti* and IQ

Graph no. 03 – Shows the correlation between grades of IQ and *Prakriti*.

The maximum number of students was covered under the group *pitta-kapha prakriti*, in which all the grades' IQs came. *Pitta kapha* group contained most of the students with high intelligent IQ, average IQ, and low average IQ than other grades of IQ. The number of students having superior IQ was more in *pitta kapha prakriti* than in the other groups. The students having borderline IQ and extremely low IQ were also more in *pitta kapha prakriti* than other groups of *prakriti*.

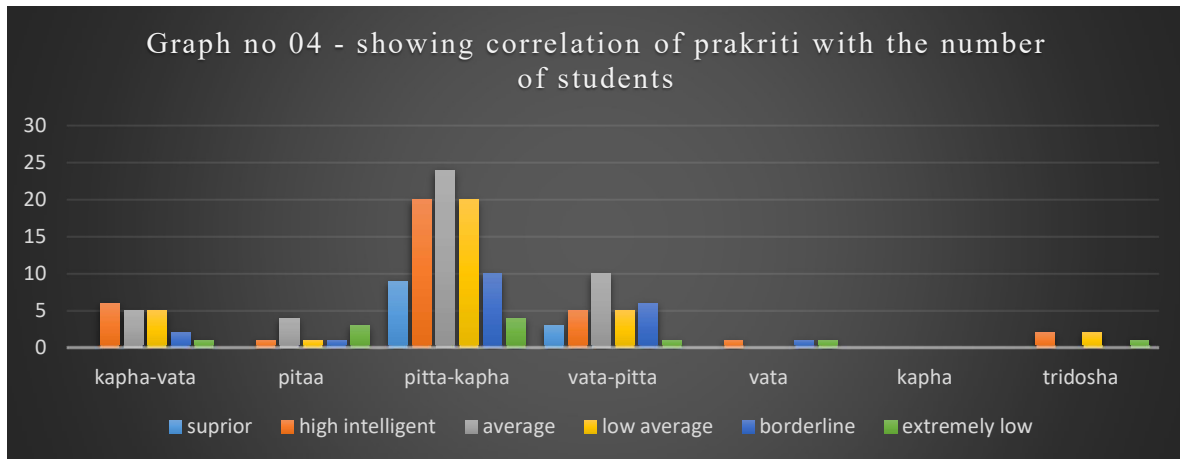
In the *kapha vata prakriti* group no students scored for superior IQ. Most of the students of the *kapha vata* group scored for high intelligent IQ than any other IQ grade and very less number of students scored for extremely low IQ. The students who scored for average and low average IQ were the same in number in this group, the students for borderline IQ were second least in number.

In the *vata pitta* group, all six grades of IQ were found. Maximum students scored for average IQ. The second most grade is borderline IQ, the students scoring for high

intelligent IQ and low average IQ were equal in number. The superior IQ grade were the second least in number and the extremely low IQ grade were the least in number. In the *pitta prakriti* group, all IQ grades were found except superior IQ grades. The most scored grade of IQ were for average IQ and the second most grade was for extremely low IQ grade. The high intelligence, low average, and borderline grades of IQ were scored by an equal number of students in this group.

In the *vata prakriti* group, only three grades of IQ were found and those were high intelligence, borderline, and extremely low IQ; scored by an equal number of students. There were no students of *kapha prakriti*.

In the *tridosha prakriti* group, only three grades of IQ were found, which were high intelligence, low average, and extremely low IQ. Amongst them, high intelligent IQ and low average IQ were scored by an equal number of students.



Kruskal Wallis Test:

Table no. 1: Kruskal Wallis test on 7 groups of *Prakrit*

	Mean	SD	KS	p	Significant
<i>Kapha-vata</i>	3.1667	2.2669			
<i>Pitta</i>	1.667	1.3744			
<i>Pitta-kapha</i>	14.5	7.2053			
<i>Vata-pitta</i>	5	2.7689	23.8693	0.0006	significant
<i>Vata</i>	0.5	0.5			
<i>Tridoshaj</i>	0.8333	0.8975			
<i>Kapha</i>	0	0			

After applying Kruskal Wallis test on seven groups of Prakriti with IQ group distribution of participants, we get KS value 23.8693 and p value 0.006 which is ≤ 0.005 . It indicates there is a significant difference in the prakriti of different IQ level students.

DISCUSSION

Prakriti and intelligence relation according to Acharya Charaka , Sushruta , Vagabhata :

Vatata Prakriti and Intelligence:

Because of the predominance of *Vata Dosha*, *Vata Guna* *Amshaamsha* influence is seen in the vata prakriti individuals. According to *Acharya Charaka*, due to the *Tikshna Guna*, vatata individuals have a good grasp [quick understanding] but are poor at retention. They have good short-term memory but poor long-term memory. (8) While *Acharya Sushruta* has said that they lack patience and have less discriminative perception. (9) According to *Acharya Vagbhata*, they are unsteady concerning *Dhriti*, *Smriti*, *Buddhi*, and *Cheshta* (activities). (10)

Pittala and Intelligence:

According to *Acharya Charaka*, *Pitta Prakriti* persons are endowed with moderate spiritual and materialistic knowledge. (11) As per *Acharya Sushruta* and *Acharya Vagbhata*, a *Pitta Prakriti* person is highly intelligent, and clever, and loves to monopolise the conversation. (12) (13) (14)

Kaphaja and Intelligence:

According to *Acharya Charaka*, *Kapha Prakriti* persons are endowed with excellent knowledge. (15) *Kapha Prakriti* person is endowed with self-control and has strong faith in *Shastra*. (16) He is intelligent, takes more time to grasp any subject but possesses long-term memory. (17)

- *Pitta Prakriti* persons are endowed with more intelligence.
- *Kapha Prakriti* persons with moderate intelligence.
- *Vata Prakriti* persons with the least intelligence.
- People with vata and pitta dosh predominant prakriti have the best short-term memory.
- People with kaph predominance prakriti have the best long-term memory. Also, have the best verbal comprehension knowledge but take time to grasp things.

The relation between personality and intellect is reciprocal. Not only do personality characteristics affect intellectual development but intellectual development may also affect personality development. The success of an individual lies in the ladder of development and the

use of her or his aptitude is bound to influence that person's emotional adjustment, interpersonal relations, and et-concept. Intelligence tests should be used not to label individuals but to help understand them. Tested intelligence should be regarded as a sorptive rather than an explanatory concept.

In Ayurveda, *Prakriti* is determined by certain factors. Classical descriptions of *Prakriti* do not specify one single way of examination of the prakriti. Therefore, for the requirements of this study, a system of *Prakriti parikshana* was devised to fulfill the purpose. A total of 36 factors were taken into consideration to decide the predominance of *Doshas*, where every feature shows considerable variation. The predominance of the *Doshas* is studied concerning their *gunas*. Each character tick marked by the subject was given one number and thus *prakriti* was determined.

A total of 200 subjects of the age group 19-25 years were taken. They were given a *Prakriti Parikshan* online form (Ayurved Vyaspeeth) and then with a question and answer session, their *Prakriti* was determined. This *Prakriti Patrak* is available on the Ayurved Vyaspeeth portal. (Link is given at the end in the Gr appendage). The WAIS(Wechsler Adult Intelligence Scale) test of different types of IQ assessment questions (designed from freeiqtest.net) was given to the subjects. Their answers were marked in the table (given at the end in the Gr appendage). Thus, their scores were determined.

Conclusion

By knowing *Prakriti* one can understand different physical and psychological attributes and behavioral changes. Intelligence can be inferentially assessed based on the *Prakriti* of an individual.

Implication and future scope

We can understand the intelligence score in the persons of different deha prakriti and according to that, we can guide them. Knowledge of Intelligence in accordance with *Prakriti* can contribute a lot in research thrust areas like Personalized Medicine.

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