

CRITICAL ANALYSIS OF RELATIONSHIP BETWEEN DEHA PRAKRUTHI AND AGE OF MENARCHE – A SURVEY STUDY

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Abstract

Ayurveda lays great emphasis on the examination of the *Prakruthi* which is the natural state of an individual. This is very important because only by understanding the original state of the body function one can understand the possible derangement in the functions. Hence knowledge of *Prakruthi* is imperative. Depending on the *Dosha* that is predominant in the *Shukra* and *Shonita* at the time of union, the food and activities of the pregnant women, state of uterus and season determine the *Prakruthi*. *Artava* in females is considered equivalent to *Shukra* in males. There lies the importance of maintaining menstrual health for a healthy progeny. Menstruation can be considered as an additional opportunity of the body for cleansing or removal of toxins. First appearance of menstruation is called menarche. It is observed in the period of puberty. Puberty is characterised by physical sexual differentiation and by the onset of activity of sex organ. All these physiological and anatomical characteristics of the body will depend on the innate *Doshic* constitution which is determined at the time of birth i.e. the *Prakruthi*. Hence menarchal age of a girl is depending on the innate *Doshic* constitution. This study is intended to assess whether menarchal age is related to *Deha Prakruthi* of an individual. An attempt is made to see the relationship between *Deha Prakruthi* and Age of Menarche. Hence in this study we conclude that menarchal age of a *Pitta Prakruthi* individual shows early menarchal age, *Vata Prakruthi* individuals shows late menarchal age and *Kapha Prakruthi* individuals shows mean age of menarchal age.

Keywords: *Prakruthi*; *Arthava*; Menarche; Menstruation; Puberty.

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INTRODUCTION

Prakruthi is a unique concept of Ayurveda. It is the innate character, physical constitution or disposition of a person on the basis of predominance of three *Doshas*, determined at the time of conception.^[1] It is the expression of physical features and behaviour of an individual and can be understood as phenotype in genetics. Acharya Charaka considers *Prakruthi* as normal state hence describes *Sama* as only *Prakruthi*. Acharya Sushruta describes *Dosha* is elevated (*Utkata*) but within normal limits. According to Asthanga Hridaya, in any *Prakruthi*, *Dosha* are elevated but well tolerated and do not cause abnormality. Charaka explains assessment of *Prakruthi* based on *Guna*^[2] and describes the physiological manifestation of each *Guna* separately. Sushruta,^[3] Vagbhata and Sharangdhara^[4] describes *Prakruthi* based on anatomical, physiological and psychological characters. Thus *Prakruthi* is retrospective evaluation of *Guna* based on clinical examination of an individual.

Artava in females is considered equivalent to *Shukra* in males. Menstruation can be considered as an additional opportunity of the body for cleansing or removal of toxins. First appearance of menstruation is called menarche. Attaining menarche is an additional opportunity of a female to maintain menstrual health for a healthy progeny. It is observed in the period of puberty. Puberty is characterised by physical sexual differentiation and by the onset of activity of sex organ.^[5] Central nervous system bears a main link in the communication between the adeno-hypophysis and the ovary. It helps for the maintenance of growth hormones, reproductive hormones etc. All these processes are further depending up on the menarchal age of the girls. *Rajopravruthi* is one among the physiological functions in the body. *Rajopravruthi kala* is main factor to determine women reproductive life. Hence *Rajopravruthi kala* is determined on the basis of specific *Prakruthi*.

REVIEW OF LITERATURE

Concept of *Prakruthi*

The word *Prakruthi* is derived from *Pra* + *kri* which means to create or to act. Each and every individual in the universe born with some or other physical or mental peculiarities which remains with him throughout the life. Such peculiarities that are acquired by birth are called *Prakruthi*.

Prakruthi is defined as,

- “*Prakruthisthu swabhavam*”^[6]

The term *Prakruthi* means *Swabhava* or the nature of an individual.

- “*Swabhavamithiprathyatmaniyatha roopam*”^[7]

Prakruthi is one's own constitution which is individual specific means it is controlled by its own physiology.

- “*Prakruthi sharira swaroopam*”^[8]

Prakruthi is enumeration of body feature, internal as well as external.

Hence *Prakruthi* that which constitute, distinguishes and characterises a person apart from other in respect of his physical and psychological makeup and reactions to environment. The group of characters inherited by an individual from the *Shukra* and *Shonitha* of the parents depending upon the predominance of *Doshas* or *Doshas* prevailing at the time of conjugation (fertilization).^[9]

According to modern concept: Personality has defined as the integrated organisation of all the psychological, intellectual, emotional and physical characteristics of an individual esp. as they are presented to other people.^[10]

Acharya Charaka explains assessment of *Prakruthi* based on *Guna* and describes the physiological manifestation of each *Guna*

separately. For example, *Vata Prakruthi* is illustrated on the basis of *Ruksha* (dry), *Laghu* (light), *Chala* (mobile), *Sheeghra* (fast), *Sheeta* (cool), *Parusha* (rough), *Vishada* (lucid), *Alpa* (small) *Guna*.^[11] Each *Guna* is responsible for specific physiological and psychological characteristics. Sushruta, Vagbhata, Harita, Bhaavmishra and Sharangdhara describes *Prakruthi* based on anatomical, physiological and psychological characters. Sushruta and Vagbhata (Samgraha and Hridaya) have added numerous objective parameters as: cracked legs and feet and developed calf muscles of *Vata Prakruthi*, coppery hair and laxity of joints for *Pitta Prakruthi*, long arm, broad chest and muscular body of *Kapha Prakruthi*. Dreams, liking and disliking of different *Prakruthi* have elucidated by other Samhitas. Shaarandhara has listed few parameters for quick assessment of *Prakruthi*. Sushruta and Vagbhata have linked *Prakruthi* with some animals or birds based on similarity of characters. This similarity is termed as *Anukatva* and explained as – *Vata Prakruthi* personality is analogous to goat, jackal, dog etc;^[12] *Pitta Prakruthi* is similar to cobra, owl, cat etc^[13] and *Kapha Prakruthi* resembles swan, elephant, lion etc.^[14]

CONCEPT OF ARTAVA

Nirukthi of *Artava* is *Rithubhavamarthavam*,^[15] *Rithu* means particular period or specific time and *Bhavam* means to happen or to occur. Which means a substance that flows out of the body at a particular period or specific time is called *Artava*.

Arthava is defined as,

According to Acharya Vagbhata, in females blackish colour and specific odour *Raktha* is discharged periodically from *Apathya Marga* (vagina) by *Vayu*.^[16] In female the *Raktha* which is produced from *Rasa* and flows every month for 3 days.

According to Bhavaprakasha, “*Malarupa Rudhira*” which makes its appearance through vagina every month i.e. menstrual blood, is called as *Rajah*.^[17] The presence of regular menstruation indicates the starting of reproductive life of a woman, which is indicated by Bhavaprakasha as ‘*Stridharma*’.

In modern science, menstruation is a cyclical discharge of blood, mucous, and certain other substance from the uterus in the reproductive life of the female, at an average interval of 28 days.^[18] First menstruation in the life of a female is termed as menarche. It may occur anywhere between 12-16 years. It is controlled by hypothalamo-pituitary- ovarian axis.^[19]

In modern view according to Shaw’s law it is said that puberty is considered as delayed when the secondary sexual characteristics do not appear by the age of 14, and menarche is not established by 16 years of age. Further it revealed hereditary, environment, nutrition, emotional stress and childhood illness can influence the onset of puberty.

Artava Utpathi Hetu (reason for the formation of menstrual blood)

Ayurvedic classic haveno direct references for Utpatti of *Rajah / Artava*. Some scattered indirect references are available in which some different factors shows the importance in Utpatti of *Rajah / Artava*. They can be explained as *Kala* (time),^[20] *Swabhava* (nature),^[21] *Dhathuparipurnatha* (growth and development of reproductive tissue),^[22] *Karma* (function),^[23] *Vayu*^[24] and others.

Concept of Puberty

Puberty (latin: Pubertas – adulthood) is the state of becoming functionally capable of procreation. Puberty is characterised by physical sexual differentiation and by the onset of activity of sex organ.^[25]

Physiological Changes in Puberty^[26]

Puberty marks the normal physiologic transition from childhood to sexual and reproductive maturity. In puberty, primary sexual characteristics of the hypothalamus, pituitary and ovaries initially undergo an intricate maturation process. This maturation leads to the complex development of secondary sexual characteristics involving:

- Physical changes – breast development, axillary hair and pubic hair growth.
- Sexual changes – the gonad develop, producing mature gamete, the secondary sexual characters appear, the most characteristics features is the appearance of menstruation.
- Mental changes – during puberty the psychological changes are profound. The happy-go-lucky tomboy changes into a self-conscious girl who is interested in her appearance, may be moody and secretive and is often imaginative and curious.

MATERIALS AND METHODS

Standard questionnaire for assessing *Deha Prakruthi* prepared by Rashmi Sharma & Kishor Patwardhan of Banaras Hindu University, Varanasi, U.P. And self – prepared questionnaire for menarchal age and personal data.

Source of Data

Apparently healthy 300 female individuals were studying in the campus of Govt. Science College Hassan, AVK Women's College Hassan and Shri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan are selected irrespective of caste, creed etc., who are fulfilling the criteria of age group between 17- 25 years also those who already attains menarche were selected and their *Deha Prakruti* was assessed with the help of the questionnaire. The 300 individuals

were divided into 3 groups based on the *Pradhanata* of the *Dosha* which decides the *Deha Prakruti* like *Vata Pradhana*, *Pitta Pradhana* and *Kapha Pradhana*. The health status was assessed using a Standard questionnaire HSQ-2.0. Thereafter menarchal age, cycle duration, number of days of bleeding and mother's age of menarche were assessed by the help of questionnaires.

Inclusion Criteria

Age limit between 17-25 years, subjects already attained menarche, individuals mostly speaking kannada language, individual staying in same geographical area since 3 years.

Exclusion Criteria

Developmental delay and history of chromosomal anomalies

Plan for the Study

The study will be carried by preparing a questionnaire based on *Deha Prakruthi*, menarchal age and personal details. Then selection of colleges and permission from the college authorities. Selection of subjects related to fulfil the inclusion and exclusion criteria and take consent form from the subjects. Then assessed the *Dehaprakruthi*, age of menarche and personal data. And further we did validation of the data and subjected to statistical analysis

OBSERVATIONS

Deha Prakruthi

Among 300 individuals, 42% of individuals were belongs *Kapha Pradhana Prakruthi*, 33.3% of individuals were belongs to *Vata Pradhana Prakruthi* and 24.7% of individuals were belongs to *Pitta Pradhana Prakruthi*. (Table 1)

Table 1: Distribution of Deha Prakruthi among 300 individuals

Deha Prakruthi	Frequency	Percent
Vata	100	33.3
Pitta	74	24.7
Kapha	126	42.0
Total	300	100.0

Menarchal Age

Among 300 individuals, 25.7% of individuals attained 13 years of menarche, 24% of individuals attained 14 years of menarche, 22% of individuals attained 12 years of menarche, 19.3% of individuals attained 15 years of menarche, 5.3% of individuals attained 16 years of menarche, 3% of individuals attained 11 years of menarche and 0.7 % of individuals attained 17 years of menarche. (Table 2)

Statistical background

To know the association of two categorical data Chi-Square test for association and Eta value were applied. The Chi-square test for association tests for whether two categorical variables are associated. Another way to phrase this is that the test determines whether two variables are statistically independent. More specifically, it tests for the association / independence between two nominal / dichotomous variables.

Eta Value and Level of Association is the measure of association ranges from 0 to 1, with 0 indicating no association between the row and columns variables and values close to 1 indicating a high degree of association.

RESULTS

Mean Age of Menarche

Among 300 subjects, maximum age of menarche is at 17 years of age, minimum age of menarche is at 11 years of age. So, according to the study the mean age of menarche is 13.53 with SD – 1.289. (Table 3)

Relation between menarchal age and Deha Prakruthi

Chi –Square test was performed to see the distribution of the age of menarche in different Prakruthi. It was found that there is a significant difference in the distribution of age of menarche among the three categories of Prakruthi at p value <0.001. Pitta prakruthi individuals are showing age of menarche less than mean age of menarche (11, 12 years). Vata prakruthi individuals are showing age of menarche greater than mean age of menarche (15, 16 yers). Kapha prakruthi individuals are showing nearly to mean age of menarche (13, 14 years). Then we run Eta value of Age of Menarche and Deha Prakruthi were 0.507, so there is a strong association between them. (Table 4)

DISCUSSION

Division of Age and its Description

Acharya divides age into^[27]

- BaalaAvastha - Garbha, Baala, Kumara
- Yauvana
- Madhayama
- Vruddha.

In parasharasmrithi – the period of baala is further divided into

- Gaurie, up to 8 years
- Rohini upto 9 year
- Kanya upto 10 years and
- Above 10 year is Rajaswala.

Table 2: Distribution of Age of Menarche among 300 individuals

Age of menarche	Frequency	Percent
11	9	3.0
12	66	22.0
13	77	25.7
14	72	24.0
15	58	19.3
16	16	5.3
17	2	.7
Total	300	100.0

Table 3: Mean Age of Menarche

	N	Minimum	Maximum	Mean	Std. Deviation
Age of menarche	300	11	17	13.53	1.289

Table No: 4 Age of Menarche and Deha Prakruthi

Age of menarche		Pradhana deha prakruthi			Total
		Vata	Pitta	Kapha	
11	Count	1	8	0	9
	Expected Count	3.0	2.2	3.8	9.0
12	Count	5	45	16	66
	Expected Count	22.0	16.3	27.7	66.0
13	Count	26	8	43	77
	Expected Count	25.7	19.0	32.3	77.0
14	Count	21	6	45	72
	Expected Count	24.0	17.8	30.2	72.0
15	Count	35	5	18	58
	Expected Count	19.3	14.3	24.4	58.0
16	Count	11	1	4	16
	Expected Count	5.3	3.9	6.7	16.0
17	Count	1	1	0	2
	Expected Count	.7	.5	.8	2.0
Count	Count	100	74	126	300
	Expected Count	100.0	74.0	126.0	300.0

Artava Pravritti Kala

There is no controversy regarding time of first Artava darshana. All Acharyas have mentioned twelve years as the age of menarche.

But Acharya kashyapa has mentioned the age as sixteen years. He further says, this age can be influenced by specific Ahara (dietetics) and Arogya (health).^[28]

It is only in this text we can see the reference regarding the influence of food in Artava Darsana. According to that we can consider Acharya has mentioned upper age limit of menarche instead of giving normal time period.

According to Arunadatta, these are the probable ages, there may be slight variations in individual cases as menarche may come at eleven years of age, similarly age of menopause also may also be delayed.

Discussion on Mean Age of Menarche

Among 300 subjects, maximum age of menarche is at 17 years of age, minimum age of menarche is at 11 years of age. So, according to the study the mean age of menarche is 13.53 with Standard Deviation of 1.289.

Discussion on Relationship between deha Prapruthi and age of Menarche

Pitta Prapruthi individuals are showing early incidence of menarche (11, 12 years of age), may be attributed to *Ushna, Teeskshna Gunas of Pitta. Vata Prapruthi* individuals showing late incidence of menarche (15, 16 years of age), the reason can be attributed to *Alpa Bala* of the individuals.

Kapha Prapruthi individuals showing incidence of menarche nearly to mean age of menarche (13, 14 years of age), which can be attributed to *Uthama Bala* of the individuals.

CONCLUSION

- This study shows that there is a significant association between *Deha Prapruthi* and age of menarche.
- According to the study the mean age of menarche is 13.53 years.
- *Pitta Prapruthi* individuals showing early age of menarche (11, 12 years) from the mean age of menarche.
- *Vata prapruthi* individuals showing late age of menarche (15, 16 years) from the mean age of menarche.
- *Kapha prapruthi* individuals showing age of menarche near to mean age of menarche (between *Pittaja* and *Vataja*).

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