



Short Communication

Jatharagni and Prakriti of young Indian adult population: A descriptive cross-sectional study

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ABSTRACT

Agni has an important role to play in the physiological functioning of the body. It varies with the bodily constitution of individuals, season, age, and other factors. The uniqueness of each individual is determined by the *Prakriti* which deals with somatic and psychic development. The *Prakriti* directly impacts *Jatharagni* and determines the type of *Jatharagni*. A descriptive cross-sectional survey was conducted among healthy students from both genders aged between 18 and 30 years. *Jatharagni* and *Prakriti* were evaluated using the *Jatharagni* Assessment Questionnaire (JAQ) and a 62-item self-assessment questionnaire validated in previous study. The results indicate that there is a significant association between the types of *Prakriti* and the types of *Jatharagni* $\chi^2(6) = 155.14, (p = .001)$. The post-hoc analysis revealed that *Vatapitta* is associated with the dominance of *Teekshnagni*, *Vatakapha* is associated with the dominance of *Mandagni*, and *Kaphapitta* is associated with the dominance of *Vishamagni*. The result indicates a statistically significant association between types of *Prakriti* and *Jatharagni* (Likelihood Ratio $(\chi^2) = 27.010, p = .001$). The study establishes a significant association between *Agni* and *Dvandvaja Prakriti*. *Vatapitta Prakriti* individuals had *Teekshnagni*, *Vatakapha Prakriti* individuals had *Mandagni* and *Kaphapitta Prakriti* had *Vishamagni*. Though the results were promising, the analysis should be done with a larger sample size in different populations.

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1. Introduction

According to the fundamental principles of Ayurveda, *Agni* has an important role to play in the physiological functioning of the body. It is the cause of life, complexion, strength, health, nourishment, lustre, *Oja*, *Teja* (energy), and *Prana* (life energy) [1–3]. *Agni* is the base of life and one of the ten factors that are noted and examined before initiating the treatment of a patient. The state of *Agni* varies with the bodily constitution of individuals, season, age and other factors. *Agni* is concentrated in the *Jathara* (stomach and duodenum) in the form of *Jatharagni* (Charaka Samhita/Chikitsa Sthana/15/6–8) [4] which determines the fate of the human body and it is the invariable agent in the process of *Paka* (digestion, transformation) [5]. It is also responsible for the duration of life,

health, valour, *Ojas* (the essence of the *dhatu*s), the strength of all the *bhutagni* and *dhatvagni* [6]. The *Jatharagni* also influences the lifespan and health of the individual and it is the central digestive power that represents the metabolic functions of the body [7].

The lifestyle of the Indian population is noticeably changing. These changes include skipping meals, inadequate or excessive food intake, excessive usage of carbonated and alcoholic beverages, irregular rest and sleep, imbalance in familial activities, work, high-stress levels. These habits cause indigestion, physiological and psychological distress. When the *Agni* of an individual is *Sama*, that person would be healthy and lead a long, happy and healthy life. But, if the *Agni* of a person is disturbed, the whole metabolism in his body would be disrupted, resulting in ill health and disease [2]. If *Jatharagni* is too weak, it causes compromised digestion of food and leads to malabsorption and accumulation of toxins (*ama*). If *Jatharagni* is too strong, it burns out associated tissues resulting in tissue degeneration [7].

Ayurveda has an individualistic approach that considers each human being separately, *Prakriti* (phenotype-based Ayurveda

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constitution) is an individual's uniqueness and it deals with somatic and psychic development. According to Acharya Charaka, *Panchamahabhuta* and *Chetana* (soul) join to form *Purusha* and the nature of this is *Prakriti*. *Prakriti* [2] is described in Ayurveda based on the three individual *Doshas* namely *Vata*, *Pitta* and *Kapha*. Individuals are categorized into *Ekadoshaja* and *Dvandvaja* based on the dominance of one or two *Doshas*. The three *Dvandvaja Doshas* are, namely *Vatapitta*, *Vatakapha* and *Pittakapha*. *Prakriti* directly impacts *Jatharagni* and it determines the type of *Jatharagni* in an individual, namely *Tikshna* in *Vatapitta*, *Mandagni* in *Vatakapha* and *Vishamagni* in *Kaphapitta* [2].

Research based on *Prakriti* still in its infantile stage and attention was not paid to the assessment of *Jatharagni* in various *Prakriti*. Hence, researchers undertook the task to evaluate the status of *Jatharagni* in *Dvandvaja Prakriti* individuals. The objective of the study was to make a standard format to assess *Jatharagni* and evaluate it in *Dvandvaja Prakriti* individuals.

2. Materials and methods

2.1. Ethical consideration

The study was approved by the Institutional Ethics Committee of SDM College of Ayurveda, Hassan. The study processes were explained to the participants, and consent forms were obtained before the data collection.

2.2. Study methodology

A descriptive cross-sectional survey was conducted among 150 healthy students from both genders aged between 18 and 30 chosen from a selected college of Hassan district, Karnataka. Individuals who were suffering from systemic disorders and congenital anomalies were excluded from the study. A self-assessment questionnaire based on the references from Charaka Samhita, developed by Kishore Patwardhan [8], was used to screen the study population and participants were selected and recruited based on the sub-scale analysis. Care was taken in this process as a minimum of 50 participants were recruited to the *Vatapitta*, *Vatakapha* and *Kaphapitta Prakriti* group. The questionnaire had three sub-scales, namely *Vata*, *Pitta* and *Kapha*. The sub-scale analysis was done to find out the dominance of *Dosha* by comparing the percentage of scores obtained for each *Dosha* subscale. The three *Vata*, *Pitta* and *Kapha* subscale score percentages were compared and the two highest *Dosha* percentages were considered for the dominance of *Doshas*. Based on the dominance of *Doshas*, the participants were classified and grouped into *Vatapitta*, *Vatakapha* and *Kaphapitta Prakriti*. *Vatapitta* individuals had dominant percentages of both *Vata* and *Pitta*, *Vatakapha* participants had a dominant percentage of *Vata* and *Kapha*, and *Kaphapitta* participants had a dominant percentage of *Kapha* and *Pitta*.

The researchers used a proforma to collect demographic information from the participants. *Jatharagni* was evaluated using the *Jatharagni* Assessment Questionnaire (JAQ) developed by the researchers by reviewing the *Lakshanas* (symptoms) of *Vishamagni*, *Teekshnagni* and *Mandagni* in various *Samhitas*. JAQ is a 51 item five-point Likert scale that measures the *Jatharagni* using the responses as 1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, and 5 = strongly agree. Higher scores indicate a higher amount of *Agni*. The JAQ consists of four subscales, namely *Vishamagni* with 11 items, *Teekshnagni* with 14 items, *Mandagni* with 13 items and *Samagni* with 13 items. JAQ also contains two additional three-point Likert scales to assess the *Abhyavaharana Shakti* (food intake capacity) and *Jarana Shakti* (digestive capacity). The sub-scale *Abhyavaharana Shakti* contains five items, *Jarana*

Shakti contains six items and the total scores were classified into three categories, namely *Avara* or mild (5), *Madhyama* or moderate (6–10), and *Pravara* or high (11–15). The content validity index for item-level (I-CVIs) and the scale-level (S-CVI) (0.93) were calculated and found to be valid. The reliability (Cronbach's alpha) was computed for all the sub-scales and the alpha values for *Vishamagni*, *Teekshnagni* and *Mandagni* subscales were 0.782, 0.731 and 0.793, respectively. Descriptive and inferential statistics were computed using SPSS Version 16.

3. Results

3.1. Sample characteristics

The sample characteristics of 150 young adults are described in terms of frequency and percentage. Out of 150 participants, 75 (50.00%) were aged between 18 and 21 years, while 62 (41.33%) were aged between 22 and 25 years. Among the total participants, 111 (74.00%) were females. The majority of the participants, i.e., 120 (80.00%) were Hindus. Concerning the diet, 116 (77.37%) had a mixed diet and 30 (20.00%) were vegetarian. Among the total participants, 24 (16.00%) reported having regular constipation and 19 (12.7%) reported that they regularly had sleep disturbances. Complaints of stress were reported in 14 (9.00%) of participants.

3.2. Characteristics of Agni among Vatapitta, Vatakapha and Kaphapitta participants

Out of the 150 participants, 50 each belonged to *Vatapitta*, *Vatakapha* and *Kaphapitta*. In the *Vatapitta* group, 39 participants had *Teekshnagni*, 4 participants had *Vishamagni*, 3 participants had *Mandagni*, and 4 participants had *Samagni*. In the *Vatakapha* group, 33 participants had *Mandagni*, 7 participants had *Vishamagni*, 10 participants had *Samagni* and no one had *Teekshnagni*. In the *Kaphapitta* group, 28 participants had *Vishamagni*, 2 participants had *Teekshnagni*, 2 had *Mandagni* and 18 had *Samagni*.

3.3. Abhyavaharana Shakti

When analyzing the *Abhyavaharana Shakti* among all participants, 110 (73.33%) had *Madhyama Abhyavaharana Shakti* and five (3.33%) only had *Avara Abhyavaharana Shakti*. When comparing the *Prakriti* groups, 26 (52%) and 23 (46%) of *Vatapittaja* individuals had *Madhyama* and *Pravara Abhyavaharana Shakti*, respectively. Whereas in the *Vatakapha* group, 45 (90%) had *Madhyama Abhyavaharana Shakti*. Meanwhile, in *Kaphapitta* individuals, 39 (78%) had *Madhyama Abhyavaharana Shakti* and 10 (20%) had *Pravara Abhyavaharana Shakti* (see Table 1).

3.4. Jarana Shakti

The analysis of the data collected from the participants revealed that 87 (58%) of them had *Pravara Jarana Shakti* and 57 (38%) had *Madhyama Jarana Shakti*. Only six (4%) had *Avara Jarana Shakti*. When comparing the *Prakriti* groups, 41 (82%) and eight (16%) of *Vatapitta* individuals had *Pravara* and *Madhyama Jarana Shakti*, respectively. In the *Vatakapha* group, 16 (32%) had *Pravara Jarana Shakti* and 31 (62%) had *Madhyama Jarana Shakti*. Meanwhile, in *Kaphapitta* individuals, 30 (60%) had *Pravara Jarana Shakti* and 18 (36%) had *Madhyama Jarana Shakti* (see Table 1).

3.5. Association between types of Prakriti and types of Jatharagni

Table 2 indicates a significant association between the types of *Prakriti* and *Jatharagni* $\chi^2_{(6)} = 155.14$, ($p = .001$). The post-hoc

Table 1
Frequency and percentage distribution of *Abhyavaharana Shakti* and *Jarana Shakti* among the participants (N = 150).

Prakriti	Abhyavaharana Shakti						Jarana Shakti					
	Avara		Madhyama		Pravara		Avara		Madhyama		Pravara	
	F	P	F	P	F	P	F	P	F	P	F	P
Vatapitta	1	2.00	26	52.00	23	46.00	1	2.00	8	16.00	41	82.00
Vatakapha	2	4.00	45	90.00	3	6.00	3	6.00	31	62.00	16	32.00
Kaphapitta	2	4.00	39	78.00	10	20.00	2	4.00	18	36.00	30	60.00
Total	5	3.33	110	73.33	35	23.33	6	4.00	57	38.00	87	58.00

analysis revealed that *Vatapitta* is associated with the dominance of *Teekshnagni*, *Vatakapha* is associated with the dominance of *Mandagni* and *Kaphapitta* is associated with the dominance of *Vishmaggni*.

3.6. Association between types of Prakriti and Abhyavaharana Shakti

The likelihood ratio has been computed to assess the association between types of *Prakriti* and *Abhyavaharana Shakti*. The result indicates a statistically significant association between the variable (Likelihood Ratio (4) = 27.936, p = .001). The post-hoc analysis revealed that *Prakriti* is significantly associated with *Madhyama Abhyavaharana Shakti*.

3.7. Association between types of Prakriti and Jarana Shakti

The likelihood ratio has been computed to assess the association between types of *Prakriti* and *Jarana Shakti*. The result indicates a statistically significant association between the variables (Likelihood Ratio (4) = 27.010, p = .001). The post-hoc analysis revealed that *Vatapitta* and *Kaphapitta Prakriti* are significantly associated with *Pravara Jarana Shakti*. Meanwhile, *Vatakapha Prakriti* is significantly associated with *Madhyama Jarana Shakti*. The researchers followed reporting guidelines for the dissemination of the findings [9].

4. Discussion

4.1. Vatapitta Prakriti and Agni

The *Samana Vata* and *Apana Vata* (Susruta Samhita/Sootra Sthana/12/8–9) subtypes regulate the gastrointestinal functions such as *Viveka* (digestion, absorption, and segregation of waste) (Susruta Samhita/Sootra Sthana/15/3) [5,14,15]. Among the *Vatapitta individuals*, most of them had *Teekshnagni* even though there was a dominance of *Vatagunas*. This was because of *Pitta Dosha* and the *Yogavahi* property (which accentuates the properties of others) of *Vata*. *Yogavahi* can carry the property of other *Dosha* with which it combines. Here it is the *Vata Dosha* that has this property. *Vayu* is

exceedingly *Yogavahi* in nature [10]. When combined with *Tejas*, it produces a burning sensation and when combined with *Soma*, it produces a cooling effect. It has been stated that even though *Vayu* is cold in nature because of *Yogavahi* property, instead of manifesting its own attributes, it manifests the attributes of the *Dosha* with which it is combined. It is the property of a *Yogavahi* substance to accentuate the attributes of the matter to which it is added. *Pitta Dosha* has more of *Ushna* and *Teekshna Gunas*. Therefore, based on these, they had signs of *Galashosha* (dryness of throat), *Oshdashosha* (dryness of lips), and *Daaha* (burning sensation) after the intake of food. The person usually can digest a large amount of food because of *Teekshna Guna* and frequently eat food and may complain of *Santapa* (heat), *Daaha* etc. Due to *Ushna Guna*, this *Prakriti* individual will feel hunger and thirst frequently. Hence, he drinks more amount of water compared to others. From the above discussion points, it is clear that *Vatapitta Prakriti* will have *Teekshnagni*.

4.2. Vatakapha Prakriti and Agni

The *Vata* individuals have irregular digestion patterns and the *Kapha* individuals have the least metabolic capacity among the three *Prakriti* types [11,12]. Among the participants of *Vatakapha*, most of them had *Mandagni* though there is a dominance of both *Vata* and *Kapha Doshas*. *Kapha Gunas* such as *Stimitha*, *Guru Guna* and *Sheeta Guna* appeared to influence the *Agni* of that individual. Based on these *Gunas* and the *Yogavahi* property of *Vata*, the state of *Agni* was *Manda*. *Mandagni* is the state of *Agni* in which the digestive power is diminished [13]. It is the property of a *Yogavahi* substance to accentuate the attributes of the matter to which it is added. In this *Vatakapha Prakriti* individual, due to the presence of *Sheeta Guna*, *Snigdha Guna*, and *Mandha Guna*; the person takes food slowly, leading to less intake of food and hence suffers from the heaviness of abdomen and head, laziness, vomiting sensation, drowsy feeling, etc. From the points mentioned above, it is clear that *Vatakapha Prakriti* will have *Mandagni*.

4.3. Kaphapitta Prakriti and Agni

In this study, out of 50 volunteers, 28 had *Vishmaggni*. This may be due to the antagonistic property of *Kapha* and *Pitta*. In *Kaphapitta*

Table 2
Frequency and percentage distribution of *Agni* among *Vatapitta*, *Vatakapha* and *Kaphapitta* participants and Chi-square test computed between *Prakriti* and *Jatharagni*.

N = 150											
Prakriti	Vishmaggni		Teekshnagni		Mandagni		Samagni		χ ²	df	p value
	F	P (%)	F	P (%)	F	P (%)	F	P (%)			
Vatapitta	4	8	39	78	3	6	4	8	155.14	6	.001 ^a
Vatakapha	7	14	0	0	33	66	10	20			
Kaphapitta	28	56	2	4	2	4	18	36			
Total	39	26	41	27.34	38	25.33	32	21.33			

^a Significant at 0.05 level.

Prakriti, there is a dominance of *Gunas* related to both *Kapha* and *Pitta*. The *Gunas* of *Pitta* are *Ushna*, *Teekshna* and *Drava Guna* and that of *Kapha* are *Sheeta*, *Guru*, *Sthira Gunas*, which are opposite to each other. According to the *Aahara Visheshha*, there will be variation in *Agni* that is sometimes *Teekshnagni* and sometimes *Mandagni*. This variation in *Agni* is nothing but the *Vishama* state of *Agni*. For example, if a person of *Kaphapitta Prakriti* is consuming more *Kaphakara Aahara* and *Vihara* there will be *Mandagni* and if he is consuming more *Pittakara Aahara* and *Vihara*, there will be *Teekshnagni*. In an individual with *Kaphapitta Prakriti*, there will be a presence of *Vata Dosha* in a small percentage. This *Vata* has *Anyakopana* (doing vitiation of *Pitta* and *Kapha*) and *Prerakatva* property (stimulate *Pitta* and *Kapha*). *Vata* will stimulate both *Pitta* and *Kapha* inconsistently, so it also plays a role in the state of *Vishamagni* [14]. These points declare the dominance of *Vishamagni* in *Kaphapitta Prakriti*.

4.4. Variation of Agni with the Prakriti

In the present study, 66% of participants had *Agni* related to their *Prakriti*. The rest of the participants showed a variation between their *Prakriti* and *Agni*. The variation in *Agni* may be noticed because of their work habits such as psychological tension, varying sleep patterns, dietary habits such as fast foods, junk foods, not following *Aahara Vidhi* etc. This is seen more among the younger individuals aged between 18 and 30 years. In the present study, 24 individuals had constipation problems, 19 people complained about sleep disturbance, 14 were stressed and most of the volunteers were following a mixed diet pattern. This may possibly be a reason for the variation of *Agni* with their *Prakriti*. *Ahita Nidra* also leads to *Mandagni*. Decreased or disturbed sleep will increase *Rooksha Guna* in the body and it will also affect the state of *Agni*. Constipation will lead to the vitiation of *Apana Vata* and cause upward movement of this *Vata*. It leads to impairment in the *Tridoshic* equilibrium of *Koshta* by vitiating *Jatharagni*. If *Mamsashana* is not done correctly without following the *Ahara Vidhi* will lead to impairment in *Jatharagni* as it is *Guru* and *Shleshmala*. Stress hampers *Agni*. In *Ahara Vidhi*, there is a description to consume food with the concentration of mind and consciousness of self. When a person is stressed, his mind gets disturbed and may be afflicted by anger, anxiety etc. It, in turn, hampers the *Agni*.

4.5. Prakriti and Abhyavaharana Shakti, Jarana Shakti

Among the 26 members in *Vatapitta group*, 45 members in *Vatakapha group*, and 39 members in the *Kaphapitta group* had *Madhyama Abhyavaharana Shakti*, which was statistically significant. In *Vatapitta* 23 members had *Pravara Abhyavaharana Shakti*. Out of 150 participants, 49 members in *Vatapitta*, 31 members in *Vatakapha*, and 30 members in the *Kaphapitta group* had *Pravara Jarana Shakti* which was statistically significant. One of the reasons behind *Pravara Jarana Shakti* and *Madhyama Abhyavaharana Shakti* could be because of the influence of *Ritu* on *Jatharagni* [15]. The study was carried out in the *Hemantha Ritu* that is in November and December. In this season, because of the *Sheetala Vayu* in the external environment, internal *Agni* gets stimulated more and *Shareerika Bala* will be *Shreshta*. Also, the study was carried out in the *Madhyama* and *Youvana* age group individuals. As it is *Pitta* dominant age, the digestive capacity will be good. Hence, this might be why a maximum number of persons in this study have good digestive power and ingestion capacity irrespective of *Prakriti*.

4.5.1. Limitations

The study was conducted in a small group of participants and the results should be proven with a larger sample size in different

populations. The study does not undertake a gender-based analysis due to a small number of male participants compared to female participants. The study was conducted on young adults and the result cannot be generalized to the middle-aged or older adult population.

5. Conclusion

Agni has a spreading nature and is responsible for all types of transformations in the body. It plays a very important role in the growth, development and maintenance of the body. There is a definite type of *Jatharagni* for a particular *Prakriti* and this is pre-determined. Understanding one's own *Agni* and *Prakriti* helps individuals choose a specific diet and regimes for a healthy life. The study establishes the association between *Agni* and *Dvandvaja Prakriti*. It was observed that *Vatapitta Prakriti* individuals had *Teekshnagni*, *Vatakapha Prakriti* individuals had *Mandagni*, and *Kaphapitta Prakriti* had *Vishamagni*. Although the results were promising, they should be proven with a larger sample size in different populations.

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Author contributions

Meera Kuttikrishnan: Conceptualization, Methodology, Investigation.

Rudresh Sridhar: Validation, Writing, Reviewing & Editing.

Elgeena Varghese: Formal analysis, Original draft preparation.

Conflict of interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jaim.2021.04.008>.

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