

Correlations between blood group and dominant *Prakriti* based on the *Tridosha* concept of Ayurveda

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ABSTRACT

The concept of 'Tridoshas' in Ayurveda encompasses a well-defined theory of maintaining and upholding the basic nature of human body and its physiology by means of three biological energy pillars i.e. Vata, Pitta and Kapha. This paper is to depict the analysis of relation between Tridoshas with blood groups (ABO system) in healthy individuals. A total of 656 healthy individuals were assessed for their dominant Prakriti (Tridoshas) and type of blood groups. Statistical analysis was performed using SPSS version 24, showed no significant association ($p > 0.05$) between the dominant Prakriti and the blood group of an individual. However, Pitta dosha was found predominant among all blood groups of the sample population. No significant association was found between the same. Pitta dosha was found to be predominant among the individuals (46.8%) of different blood groups of the sample population.

Keywords: Prakriti, Tridosha, blood groups.

1. Introduction

Ayurveda is an ancient Indian system of medicine, which provides detailed and organized information about human health and its related ailments. Ayurveda is believed to be a science that imparts not only physiological, but also psychological (mental) and spiritual well-being. According to ayurvedic philosophy, Tridoshas are considered the pillars or mainstay of the body, responsible for its creation, preservation and destruction [1]. *Tridosha* ('Tri'=three+'Dosa'=capable of vitiation) is an ayurvedic concept, which comprises three basic biological energy namely *Vata*, *Pitta* and *Kapha*. The *dosas* are responsible for homeostasis and health of living beings. When these energy forces are in equilibrium the living beings are in a normal health status and when they are deviate produce diseases. All bodily processes, physical or chemical are controlled by them. According to the Ayurvedic system, each individual is born with a unique body type determined by dominance of one or more of the three *dosas* and classified into *Vata Prakriti*, *Pitta Prakriti* and *Kapha Prakriti* [2]. *Prakriti* is established at conception stage of the living organisms and are unchanged throughout the living period [3]. A considerable number of researches worldwide to understand the concept of *Tridosha* and validate the same with the principles of modern science have been undertaken. Recent research findings prove existence of association between *Tridosha* and metabolic functions of living organisms [4]. The research findings have concluded that *Tridosha* is basic to all the living organisms and even the single cells. It also has been inferred that *Prakriti* must be a phenotypic phenomenon resulting from a particular genotype. The *dosas* regulate the metabolic pathways in the organisms. This understanding has led to evolution of a new discipline called 'Ayugenomics' [5]. Research has identified that the three *dosas* control the metabolic constitution and processes. Functions like cell division, movement and excretion of waste are governed by *Vata*; while anabolism, growth, structure and storage are influenced by *Kapha*. Metabolism and homeostasis are ruled by *Pitta* [6]. Association between *Tridosas* and Body Mass Index [3], peptide coenzyme A [4], basal metabolic rate related to aging [7] and CYP2C19 substrates, which are responsible for metabolic rate [8] have been confirmed through research. Sierra [9] proved connection between *Tridosha* and psychological and endocrinological elements and recommend potential biomarkers linked to the *Prakritis*.

Another study, aims to associate some features of placenta with the *Prakriti* and weight of the newborn [10]. In addition, a study assesses the association between genotype, phenotype and *Prakriti* in individuals on phenytoin monotherapy [11]. Another study associated genomic variations with the classification of *Prakriti* [12]. The relationship between *Tridosha* and vulnerability of individuals towards certain diseases like obesity has also been proved [13]. Mahalle et al. [6] identified association between *Tridosha* and the levels of biomarkers of coronary artery diseases. Purvya and Meena [7] proved association

of *Tridosha* with aging and cancer. Prajapati and Sharma [14] found out association between *Tridosha* and prevalence of diabetes.

The ABO system was first discovered by Landsteiner and Weiner [15] and it comprises of four blood types: O, A, B, and AB. Blood group O erythrocytes do not have any antigen, but O- serum possesses antibodies to both A and B antigens. Whereas blood group A and B erythrocytes bear the A and B antigens, respectively, and make antibodies to the others. Type AB erythrocytes have both A and B antigens and do not make antibodies [16, 17]. Interestingly, a lot numerous researchers have reported that the blood group variation occurs in different areas as per the races [18, 19].

For years, scientists have been engrossed in the finding the relationship between blood type and well being. Recent research has provided major advances, indicating a strong relationship between different blood types and the whole lot of diseases varying from infertility to diabetes. For example correlation between the blood type with diseases like caries [20], salivary gland tumors [21], chicken pox [22], malaria [23], oral cancer [24], hematological malignancies [25], ischemic heart disease [26] and cholera [27] have been established. In one of the study it was suggested that the persons having blood group A were more susceptible to gall stones, cholangitis [28] and tumors of pancreas as well as ovary [29], blood group O are more prone to increased risk for coronary artery disease (CAD) [30] and individuals having blood groups A and O have more chances for diabetes mellitus [31].

In the present study, questionnaire method was used to assess the *Prakriti* of individuals and their association with the blood groups was thus identified.

2. Materials and methods

2.1. Study design and *Prakriti* assessment

Out of 656 participants, 487 healthy individuals (both male and female, aged 18-30 years) were selected for the study. Participants were free from any chronic systemic disorders, smoking and alcohol consumption habits. These individuals were selected based on having a single dominant *Prakriti*. Participants having dual *Prakriti* were excluded from the study. The groups thus formed were labelled as Vata (V), Pitta (P) and Kapha (K). The groups thus formed were then assorted according to blood groups (AB, A, O and B).

2.2. Blood group determination

Blood groups of the participants were determined by blood typing tests performed in an NABL accreditation certified pathology laboratory.

2.3. Development of questionnaire for *Prakriti* assessment

A questionnaire for determining the dominant *Prakriti* of the participants was designed based on description given in the Ayurvedic textbooks viz. *Charaka Samhita* [13] and *Susruta Samhita* [32]. The physiological as well as psychological assessment of volunteers was done.

2.4. Analysis of association between blood group and dominant *Prakriti*

Statistical analysis of association between blood group and dominant *Prakriti* was done by performing Chi-square test using SPSS version 24.

2.5. Ethics statement

This study was carried out in Patanjali Yogpeeth, Haridwar, India, after taking permission from ethical committee. Signed informed consent was obtained from all the volunteers for the study.

3. Results

3.1. *Prakriti* assessment

The results obtained by the validated questionnaire for determining the dominant *Prakriti* were crosschecked by clinical assessment of *Prakriti* by an experienced Ayurveda physician. Based on the results thus obtained, 487 healthy participants were categorized into three dominant *Prakriti* categories as Vata (n=105), Pitta (n=253) and Kapha (n=129) as shown in Fig 1.

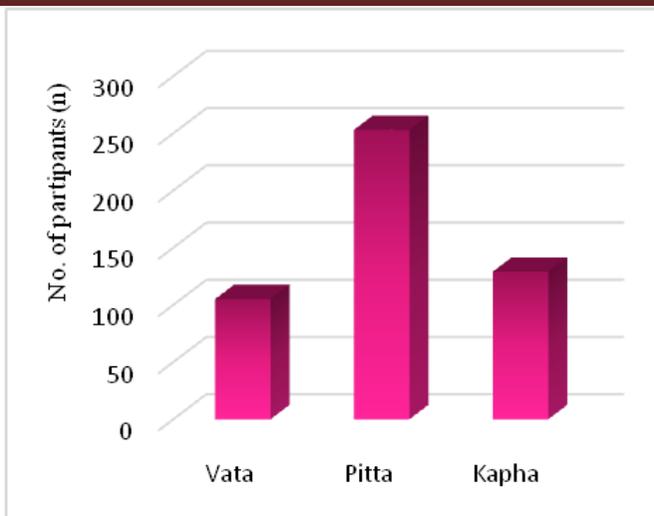


Fig 1 Classification of sample population according to dominant Prakriti

Some of the general physical and psychological characteristics observed in the participants are mentioned in Table 1 below.

Table 1 Physical and psychological characteristics of participants having different Prakriti

S.No	Feature	Vata	Pitta	Kapha
1	Body frame	Narrow, thin	Medium	Broad
2	Body build	Weakly developed	Moderate	Well developed
3	Appetite	Irregular	High	Low
4	Skin	Dry	Reddish & soft	Oily & soft
5	Hair	Dry	Normal & brownish	Thick & shiny
6	Weight gain tendency	Low	Medium	High
7	Memory	Short-term	Normal	Long-term
8	Sleep	Less	Normal	Excessive
9	Physical mobility	High	Moderate	Low
10	Hostile season	Winter	Summer	Rainy

3.2. Classification of dominant Prakriti according to blood groups and analysis of association between them

Data regarding the dominant Prakriti of the participants was further classified according to blood group of the participants as given in Table 2.

Table 2 Classification of dominant Prakriti according to the blood group of participants

Blood Group	Dominant Prakriti			Column total	Column percentage
	Vata	Pitta	Kapha		
AB	8	27	14	49	10.06%
A	22	57	20	99	20.33%
O	33	88	45	166	34.09%
B	42	81	50	173	35.52%
Row total	105	253	129	487	100.00%
Row percentage	21.56%	51.95%	26.49%	100.00%	

It can be observed that Pitta Prakriti is dominant in all the blood groups. 253 out of 487 participants (51.95%) have Pitta Prakriti as the dominant one. In blood group AB, 27 out of 49 (55.10%), in blood group A, 57 out of 99 (57.57%), in blood group O, 88 out of 166 (53.01%) and in blood group B, 81 out of 173 (50.87%) participants have Pitta Prakriti as the dominant one. This can also be observed in the bar diagram in Fig 2.

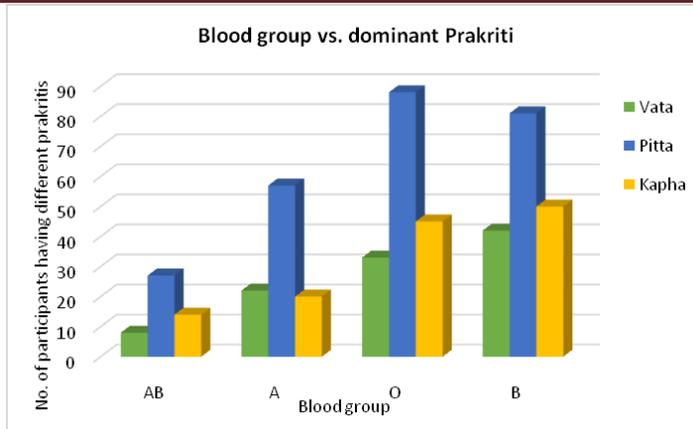


Fig.2 Classification of dominant Prakriti according to the blood group of participants.

On statistical analysis of this data, no significant association was found between the blood group and dominant Prakriti of the participants. The significance values obtained by conducting various parametric and non-parametric tests are as follows:

Table 3 Statistical test and significance value

S. No	Test conducted	Significance value obtained
1	Chi-square	0.826
2	Oneway ANOVA	0.878
3	Kruskal-Wallis	0.876

Based on the significance values obtained by the above mentioned tests, it can be inferred that no significant association can be seen between blood groups and Prakriti.

4. Discussion

Some researchers have tried to establish relation between physiological parameters in concordance with constitutional type of Ayurveda i.e. Prakriti [33]. Blood group (ABO system) in human beings is one such basic physiological parameter of human body. A few studies have thus tried to relate blood group (ABO system) to the Prakriti of an individual. For example, Purandare and Prasad, in their study, have associated Kapha Prakriti with blood group A, Pitta Prakriti with blood group B and Vata Prakriti with blood group O [34]. Similarly Chaple and Dawale have also studied the relation between Prakriti and blood group among students where they concluded Vata Prakriti was associated with blood group A, Pitta Prakriti was associated with blood group O and Kapha Prakriti was associated with blood group B [35].

The present study examined whether blood group is associated to dominant Prakriti. It was found that blood group is not associated with the dominant Prakriti of an individual. Instead, Pitta Prakriti was found to be predominant among all blood groups. Rotti et al, in their study stated that none of the blood groups showed statistically significant variations among the various Prakritis tested [6]. Our study also signifies the same.

However, the scope of this study can be further improved by incorporating the following details:

- Prakriti assessment can be done keeping in mind the geographical location of the sample population, which is considered to have substantial impact on the Prakriti of an individual [6]. This fact is in concordance with the ayurvedic texts [36].
- Sample population having a greater age range can be selected for the study. This will help in analysing the effect of age on Prakriti.
- Association between other such features regarding Prakriti of an individual already described in traditional Ayurvedic texts can be analysed by using modern scientific methodologies. Thus helping to draw an analogy to contemporary knowledge.

5. Conclusion

This study shows that blood groups cannot be thus used as features to classify dominant Prakriti as no statistically significant association was found between them ($p > 0.05$). Rather, Pitta prakriti was found to be predominant among the sample population. The reason for the predominance of one dosha in the sample population can be further scientifically investigated considering the fact that Prakriti of an individual

depends on various factors like: heredity, maternal diet, lifestyle, dosha dominance in the maternal reproductive tract, place of birth, time of birth, age of parents, socio-economic condition etc. This can further widen the scope of this study, which may yield new and valuable knowledge.

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Conflict of interest

None

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