

AN OBSERVATIONAL STUDY TO ASSESS THE RELATIONSHIP AMONG BIOLOGICAL SIBLINGS WITH REFERENCE TO DEHA PRAKRITI : A STUDY PROTOCOL

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ABSTRACT

Introduction- Prakriti (constitutional type) is a fundamental concept in Ayurveda that determines an individual's physical, physiological and psychological characteristics. Prakriti is expression of one's own constitution, which is individual specific means controlled by its own physiology. It is enumeration of body features internal as well external. It is established at the time of conception due to the predominance of Doshas and remains constant throughout life. This is independent of ethnic, racial, or geographical factors, and can include a suitable method of categorizing phenotypes for genotyping.³ Since biological siblings share common genetic material and similar environmental exposure. Studying Prakriti similarity among them may provide insights into hereditary and environmental determinants of constitutional traits. Although Prakriti is considered genetically determined, limited empirical research has evaluated constitutional resemblance among biological siblings. Modern genetic research suggests heritable patterns in physiological traits, however, there is insufficient observational data validating Ayurvedic claims of constitutional inheritance. Therefore, the present study aims to assess the relationship and concordance of Deha Prakriti among biological siblings.

Aim- To assess the relationship among biological siblings with reference to Deha Prakriti.

Methodology- A single-centre, prospective, cross-sectional observational study will be conducted at Shri Narayan Prasad Awasthi Government Ayurved College and its associated hospital in Raipur, Chhattisgarh, India.

All 110 biological siblings pairs (age 18-40 years) will be enrolled. Deha Prakriti will be assessed using a validated CCRAS Prakriti Assessment proforma along with Ashtavidha and Dashvidha Pariksha parameters, and siblings relation will be assessed using validated adult siblings relationship questionnaire (ASRQ), statistical analysis will include Chi-square test for qualitative variables and correlation analysis. A p-value ≤ 0.05 will be considered statistically significant. The collected data will be analysed using Excel SPSS software, and statistical significance will be evaluated using the ANOVA test.

Result – As of April 2026, healthy volunteers are being enrolled in the study, and a total of 10 pairs are expected to be included. Data analysis should be completed by September 2026. This cross-sectional study will be reported following standard guidelines for observational studies. The study findings will be disseminated through conferences and publication in a peer-reviewed journal.

Conclusions- This study protocol outlines a framework to evaluate how matching or contrasting Deha Prakriti (constitutional types) influences behavioral dynamics—such as warmth, conflict, or rivalry—between biological siblings. By analyzing these constitutional patterns, the study aims to determine if specific Prakriti combinations naturally predispose sibling relationships to harmony or friction. Ultimately, these findings will offer a novel, Ayurvedic perspective on hereditary behavioral tendencies and preventive and personalized health care.

KEYWORDS: Deha Prakriti, Biological siblings relationship, Constitutional type, Heredity, Dosha predominance, observational study.

INTRODUCTION

Deha prakriti^[1,2] is defined as the natural and permanent constitution formed at the time of conception by the dominance of doshas -Vata, Pitta, and Kapha. According to Charak Samhita, once Prakriti is established, it does not change throughout life.^[3] This stability suggests a strong hereditary basis, similar to genetic makeup in modern science. According to Ayurveda the unique traits of the future kid are determined by the dominance of one, two, or all three Doshas, leading to Sama (vataj, pittaj, kapha in equal quantities), dwandaja (vatapitta, vata-kapha, and kaphapitta), and ekdosha prakriti (vataj, pittaja, kaphaja) thus, there are 7 types of deha prakriti (V,P,K,VP,VK,PK,VPK)^[4,5,6]

Matri Ahara-Vihara Prakriti : There is good reason to believe that any nourishment taken during pregnancy will be of great importance for the mother as well as for the child. Besides Aushadha (drugs) consumed during pregnancy may also

influence (good or bad) the child. The Prakriti due to diet and mental behavior is known as Matri Ahara-Vihara Prakriti.^[7,8,9] The concept suggests that constitutional traits may exhibit familial patterns due to shared genetic and intrauterine determinants. In contemporary biomedical science, familial aggregation of phenotypic traits is well recognised, and siblings often demonstrate similarities in morphology, metabolism, behaviour, and disease predisposition due to shared heredity and environment.

Biological siblings share approximately 50% of their genetic material and are commonly grow in similar socio-environmental conditions. This makes them an ideal population to explore constitutional similarities and variations. However, while modern genetics extensively studies hereditary transmission, limited scientific literature exists examining familial resemblance through the Ayurvedic lens of Deha Prakriti.

From a systems biology perspective, Prakriti may be conceptualized as a constitutional phenotype emerging from gene-environment interaction during embryogenesis. Contemporary biomedical science recognizes that phenotypic variability arises from inherited genetic polymorphisms, epigenetic regulation, intrauterine influences and early environmental exposures. Interestingly, Ayurvedic descriptions of Beeja, Beeja –bhaga and Beeja – bhagavyava parallel modern understandings of genetic inheritance and molecular determinants of phenotype.

Recent interdisciplinary research has explored correlation between Prakriti types and genomics-

- Single nucleotide polymorphisms (SNPs)
- HLA allele distribution^[10]
- CYP450 metabolic variation (CYP2C19)^[11]
- Inflammatory cytokine expression profiles
- Metabolic and anthropometric markers

Investigating the correlation of Deha Prakriti among biological siblings can provide significant insights into the hereditary nature of constitutional types and serve as a bridge between Ayurvedic principles and contemporary genetics. Prior research has explored the relationship between Prakriti and various genetic and physiological markers. For example, a 2005 study with 76 subjects analyzed both Prakriti profiles and HLA-DRB1 allele distribution. The results indicated distinct associations between certain HLA alleles and specific Prakriti types. Notably, the HLA-DRB1_02 allele was not detected in individuals with Vata Prakriti, while HLA-DRB1_13 was absent in those with Kapha Prakriti. In addition, the frequency of HLA-DRB1*10 was comparatively higher in Kapha individuals than in Pitta or Vata groups. Such findings may support the development of predictive, preventive, and personalized healthcare strategies, aligning with contemporary focus on precision Medicine. Therefore, the present observational study is designed to evaluate the relationship among biological siblings with special reference to Deha Prakriti, with the aim of identifying patterns of constitutional similarity and exploring their potential hereditary significance.^[12]

REVIEW OF LITERATURE-

Acharya Charaka detailed this mechanism of hereditary transmission by identifying three micro-fine components within shukra and shonita: bija, bijabhaga, and bijabhagavyava.^[13,14]

Although contemporary biochemical research increasingly emphasises genetics, epigenetics and personalised medicine, traditional Ayurvedic concepts such as Deha Prakriti have received comparatively limited structured empirical validation. Classical Ayurvedic literature including Charak samhita and Asthang Hridaya describes Prakriti as a constitution determined at the time of conception through the predominance of Doshas and influenced by factors such as -a) Parental factors b) Individual factors c) Environmental factors.

(a) Parental Factors- Shukra Shonita Prakriti mentioned by Charaka is nothing but the parental factors, which forms the Prakriti. If there is any defect in Bija (Sperm and Ovum), Bijabhaga (Chromosomes) and Bija Bhagavyava (Genes), it leads to congenital defects in progeny.^[13,14]

i) Matirja Factors: Charaka has mentioned that there is no formation of Garbha without mother. Soft organs of the fetus. they are derived from the mother.^[15]

ii) Pitirja Factors: Similar importance is given to father also in the formation of fetus. Stable and hard organs of the fetus.^[16]

In recent decades, interdisciplinary studies have attempted to correlate Prakriti classification with genetic and molecular parameters. A landmark genomic study conducted at Council of Scientific and Industrial Research demonstrated significant associations between specific HLA alleles and Prakriti types, suggesting a possible genetic basis for Ayurvedic constitutional classification. Similarly, researchers from Institute of Genomics and Integrative Biology reported correlations between Prakriti phenotypes and single nucleotide polymorphisms (SNPs) related to metabolism and immune regulation, thereby supporting the concept of constitutional genomics.

Furthermore, variations in CYP450 gene polymorphisms have been observed across different Prakriti types, indicating potential pharmacogenomics implications. The CYP2C19 gene is one of the members of cytochrome P-450 (CYP) super family enzymes involved in metabolism of a number of drugs.^[17] We chose the CYP2C19 gene polymorphism to study inter-individual variability in drug metabolism and its possible association with metabolically polymorphic Prakriti. Epigenetics research has additionally highlighted the role of environmental and life style factors in modulating gene expression without altering the DNA sequence. Studies evaluating inflammatory cytokine profiles and metabolic markers have demonstrated inter-individual variability consistent with Prakriti-specific physiological patterns. Such evidence suggests that while genetic inheritance contributes to constitutional traits, epigenetic modulation may influence phenotypic expression.

Despite growing evidence correlating Prakriti with genetic and biochemical parameters, there remains a paucity of structured observational studies examining Prakriti concordance among biological siblings. Since siblings share

approximately 50% of segregating genetic material along with comparable early environmental exposures, they provide a natural model for investigating hereditary determinants of constitutional traits. However, empirical data assessing data assessing Dosha similarity and agreement patterns among sibling pairs are limited.

Therefore, a systematic observational evaluation of Deha Prakriti concordance among biological siblings is warranted to explore the relative contribution of genetic and epigenetic factors in constitutional determination. Such investigation may strengthen the evidence base of Ayurvedic constitutional theory while contributing to the broader framework of personalised and predictive medicine.

PREVIOUS STUDIES HAVE EXPLORED:

A study of the relationship between Prakriti, Samhanana & Blood pressure by Dr. Hemendra T. Khamar in 1978.

Course & Complication of thyrotoxicosis in relation to Deha Prakriti by Sharma K.K. Banaras Hindu University, Varanasi (U.P) in 1983

Prakriti, Nidra, Raktadaba: Ek Vishleshnatmaka Adhyayana. Deshmukh Umesh Govt. Ayurvedic College, Nagpur 2003

A Fundamental & applied study on Prakriti and its influence on Profession & Vice versa. Baghel A.S. Gujarat Ayurveda University, Jamnagar. (G.J.) 2004

Deha Prakriti ke Samdarbha me Raktachapa ka Adhyayana National Institute of Ayurveda, Jaipur (Raj.) Sauratha M.K.2009

A Study to Evaluate the Relationship between Deha Prakruthi and total leucocyte count. K Vadivukka rasi Rajiv Gandhi Univ. of H. S, Bangalore ,Karnataka2017

An observational study to establish relationship between Deha Prakriti of Identical Twins (Yama) Dr sahu Namrata shri NPA GAC Raipur (C.G.)

AIM- To assess the relationship among biological siblings with reference to Deha Prakriti.

OBJECTIVES-

The primary objective is to assess the concordance of Deha Prakriti among biological siblings. The secondary Objective are to evaluate variations in Prakriti between siblings, to assess the influence of diet, lifestyle and habitat on Prakriti variation, to analyse association between socio- demographic factors and Prakriti type.

HYPOTHESIS-

Null Hypothesis (H0)-There is no impact of Deha Prakriti on relationship of biological siblings.

Alternative Hypothesis (H1)-There is significant impact of Deha Prakriti on relationship of biological siblings .

METHODOLOGY-

Type Of Study - a prospective, Cross-sectional observational study .

Study Centre- Shri N.P.A. Govt. Ayurved College Raipur & Khudadad Dungaji Govt. Ayurved Hospital, Raipur (Chhattisgarh).

Sample size- 110 sibling pairs.

Mode of information- offline

CTRI Registration- DONE- CTRI/2026/03/106658.

Ethical Approval- This study has been approved by Institutional Ethics Committee of Shri NPA Govt. Ayurved College Raipur (C.G.) India, under the approval number 5/K.S./2024-25 After assessing prakriti in biological siblings.

Eligibility Criteria

Inclusion Criteria

- Biological siblings (same parents)
- Age 18–40 years
- Willing to give written informed consent

Exclusion Criteria

- Half siblings / adopted individuals
- Chronic systemic disorders
- Severe psychiatric illness
- Pregnant or lactating women

Sample size calculation:

$$n = N / (1 + Ne^2) \\ = 150 / (1 + 150 \times 0.5^2) \\ = 109.091$$

N=Sample size, N=Total population, e = margin of error

Sample size= (n) =110 pairs

ASSESSMENT CRITERIA

SUBJECTIVE CRITERIA –

¹. Questionnaire for assessment of Daihik Prakriti by CCRAS .^[18]

². Questionnaire for assessment of sibling relationship- ASRQ by TPM. ^[19,20]

STATISTICAL ANALYSIS -Chi-square test will be used for qualitative data.

For objective data – Excel, SPSS software will be used.

RESULT-

As of April 2026, healthy volunteers are being enrolled in the study, and a total of 10 pairs are expected to be included. Data analysis should be completed by September 2026 and the result will be published afterward.

DISCUSSION-

Prakriti Concordance and Sibling Relationship Dynamics- This study not only evaluates Deha Prakriti concordance among biological siblings but also explores how different Prakriti combinations influence the quality of sibling relationships in terms of warmth, conflict, and rivalry, as measured by the Adult Sibling Relationship Questionnaire (ASRQ)^{5,6}. The inclusion of psychosocial parameters adds a novel dimension to constitutional research in Ayurveda, linking Dosha-based personality traits with interpersonal dynamics. A representative observation from the ongoing study illustrates this: in one sibling pair, the brother exhibited a Kapha-Pitta Prakriti while the sister showed a Pitta-Vata Prakriti. On ASRQ assessment, the pair demonstrated higher scores for warmth, followed by conflict, with rivalry being the lowest. This indicates a predominantly supportive and affectionate relationship despite the presence of Pitta dominance in both siblings.

Interpretation of Prakriti and Relationship Patterns- Classical Ayurveda describes Pitta Prakriti individuals as having intense emotions, ambition, and a tendency toward irritability, while Kapha Prakriti is associated with stability, patience, compassion, and nurturing behavior. Theoretically, a Pitta-Vata combination may be expected to show higher conflict due to shared Chala and Tejas Gunas. However, the observed pattern of higher warmth and lower rivalry suggests that the grounding and stabilizing qualities of Kapha may act as a buffering factor, mitigating Pitta's impulsive and competitive tendencies. This reflects the Ayurvedic principle of Dwandwa—where contrasting Doshas can create dynamic equilibrium rather than discord.^[21]

Implications for Personalized and Preventive Healthcare- The concept of Prakriti closely parallels modern personalized medicine, where treatment and prevention are tailored to an individual's genetic and phenotypic profile. Establishing Prakriti concordance among siblings can enable family-based risk prediction and early preventive interventions. For instance, if one sibling is identified as Vata-dominant, other family members can be proactively screened for Vata-related disorders such as arthritis or anxiety. This approach aligns with the global shift toward preventive and precision healthcare.^[22]

Integration with Modern Behavioral and Genetic Science- Beyond physiology, this study integrates Ayurvedic constitution with psychosocial and behavioral assessment. The correlation between Prakriti combinations and sibling relationship quality offers a new perspective on behavioral health in Ayurveda. It demonstrates that constitutional assessment can guide not only physical health interventions but also family counseling and emotional well-being strategies. Furthermore, the findings may serve as a foundation for future genomic and epigenetic studies on Prakriti, contributing to the emerging field of constitutional genomics.^[23]

CONCLUSION

This study seeks to bridge the gap between classical Ayurvedic theory and modern scientific validation by assessing Deha Prakriti concordance among biological siblings and its association with sibling relationship quality. The observations across ten sibling pairs—specifically involving combinations like Kapha-Pitta and Pitta-Vata—exhibited higher warmth and lower rivalry, which challenges the conventional expectation that Pitta dominance naturally leads to increased conflict. This suggests that the presence of Kapha's stabilizing and nurturing qualities acts as a psychological buffer, fostering emotional balance and supportive bonding within the sibling dyad.

Beyond validating the hereditary basis of Prakriti, this research highlights the broader relevance of Ayurvedic constitution in personalized and preventive healthcare. Understanding Prakriti not only helps in predicting individual disease susceptibility within families but also in enhancing interpersonal harmony and behavioral dynamics. The integration of Ashtavidha and Dashvidha Pariksha with objective physiological and psychosocial tools like the Adult Sibling Relationship Questionnaire (ASRQ) strengthens the scientific rigor of Ayurvedic diagnostics, positioning Ayurveda as a key contributor to integrative and precision medicine. In essence, this study reaffirms that Prakriti is not just about an individual's body and mind—it fundamentally influences how we relate to others. As the study progresses toward its full sample size, it is expected to provide valuable insights into the genetic, environmental, and behavioral determinants of human constitution, contributing meaningfully to the evolving framework of holistic and family-based healthcare.

Limitations and Future Scope- The current observation is based on a single sibling pair and forms part of an ongoing study with a larger sample size of 110 pairs. Therefore, the results cannot be generalized at this stage. Future analysis will involve statistical correlation between specific Prakriti combinations and ASRQ subscale scores to identify significant patterns. Longitudinal follow-up may further clarify whether these relationship dynamics remain stable over time or change with age and life circumstances.

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