

Influence of *Deha-Prakriti* (Body Constitution) in the manifestation of disease in context to *Amavata* (Rheumatoid Arthritis) - An appraisal

Review Article

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Abstract

Deha-Prakriti (DP) is Ayurveda's one-of-a-kind contribution, established at conception and cannot be changed throughout one's life. There are seven varieties of DP. *Vataja*, *Pittaja*, *Kaphaja* (*Shleshmala*), *Samsargaja* [combination of two *Dosha*] i.e. *Vata-Pittaja*, *Pitta-Kaphaja*, *Kapha-Vataja*, *Sannipataja* [combination of three *Dosha*] i.e. *Vata-Pitta-Kapha*. The first and most important aspect of *Dashavidha-parikshyabhavas* (ten important examination factors to be known by the physician) is the DP assessment since it plays a crucial part in *Rogi-Pariksha* (evaluation of the patient) and *Roga-Pariksha* (assessment of the disease). DP allows a physician to assess the condition of *Koshtha* (digestion system), *Agni* (digestive capacity), *Bala* (strength), and *Ayu* (life-span) in both healthy and diseased people. It may also help a physician forecast illness susceptibility, severity of signs and symptoms, disease activity scores, and bio-markers such as hematological, pathological, and biochemical indicators. Based on the severity, a physician may prepare the appropriate diet-chart, medication, dose, *Anupana* (co-drink to the primary medicine), and treatment technique (either *Shodhana karma*- purificatory measure or *Shamana karma*- Palliative measure). In light of the above facts, the current study aims to explore the DP-based susceptibility to *Amavata*, its severity, and the research strategy for future studies. An overview of evidence-based study on developing *Deha-Prakriti* with diverse illness conditions may be provided in this work, allowing for the revalidation of ayurvedic literature-based assertions.

Key Words: *Amavata*, *Deha-Prakriti*, *Disease susceptibility*, *Roga-Pariksha*, *Rogi-Pariksha*, *Rheumatoid Arthritis*, *Severity of the disease*.

Introduction

The ancient Indian medical science, Ayurveda has expanded its wings in two ways viz. "*Swasthasya swasthya Rakshanam*"- preserving the positive health of a healthy individual and "*Aturasya Vikara Prashamanam*"- treating a patient's disease (1). To accomplish these two aspects, Ayurveda advocated several *Siddhantas* (concepts), in which *Rogi-Pareeksha* (examination of the patient) as well as *Roga-Pareeksha* (assessment of the disease), two main pillars for *Cikitsa* (treatment), which aids a physician to determine the *Bala* (strength) of a patient and to estimate the severity of the disease respectively (2). In *Deerghamjivitiyam Adhyaya*, the first chapter of *Charaka Samhita sutrasthana* (an ancient Indian medical treatise), *Acarya Agnivesha* has quoted that "*Purusham Purusham veekshya sa jneyo Bhashaguttamah*" – the best physician

(*Uttama Bhashak*) is who examines each patient accurately, thereby prescribes or advice the management that prevents from medical errors (3). Furthermore, to achieve success in the direction of a disease, a total of ten examination factors have been enlisted in *Vimanasthana* of *Charaka Samhita* with a term as "*Dashavidhapareekshyabhavas*", in which the first and foremost factor is "*Deha-Prakriti* (DP- body constitution)" (4). As per *Charaka Samhita*, DP is 4 types namely, *Vatala*, *Pittala*, *Shleshmala*, and *Samadhatu Prakriti* (5). According to *Sushruta Samhita*, DP is of 7 types. *Vataja*, *Pittaja*, *Kaphaja*, *Samsargaja* [combination of two *Dosha*] i.e., *Vata-Pitta*, *Pitta-Kapha*, *Kapha-Vata* and *Sannipataja* [combination of three *Dosha*] i.e., *Vata-Pitta-Kapha* (6). DP enables a physician to estimate the status of *Koshtha* (digestion system), *Agni* (digestive capacity), *Bala* (strength), and *Ayu* (life-span) in both the healthy as well as the patient (7). It also aids a physician to predict the disease susceptibility, severity in terms of signs and symptoms, variations in disease activity scores, changes in hematological, pathological, and biochemical markers.

Modern scientists and clinicians have developed their confidence in P4, or predictive, preventive, personalized, and participatory medicine, during the past decade. Despite all current studies, individual differences in illness manifestation and the effects of

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medications on various people pushed scientists to look forward and grasp Ayurveda's tailored approach to treating patients i.e. personalized medicine. Consequently, Ayurveda's concept of DP, or individual constitution, has captivated the curiosity of academicians.

Aim & Objective

The present work aims at studying the influence of DP on disease incidence and its variations of disease-severity among various DP individuals with possible research strategies.

Materials and methodology

For a better understanding of the concept of DP and its influence on disease, traditional Ayurvedic lexicons such as Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya etc., were consulted. All the published evidence in the form of articles, dissertation works were thoroughly screened, information was collected and presented systematically to strengthen the textual claims.

Literature review

The notion of 'DP' is stated in Charaka Samhita's Navegandharaneeya Adhyaya (a chapter on suppressible and non-suppressible desires), one chapter of the Swasthya chatushka of Caraka Samhita sutrasthana (8). An individual's DP is determined during *Shukra-Shonita Samyoga* at *Garbha* (the aggregation of sperm and ovum in a mother's womb), a comparatively prevalent change called morbid status (9). At this stage, the soul's actions and facts from past lives might also influence the construction of Prakriti. It may be linked to the current medical notion of genes, in which the mother's womb is said to be the place where a child is born with the characteristics of its parents. *Sama-dhatu Prakriti*, *Vataja* predominant DP, *Pittaja* predominant DP, and *Kaphaja* predominant DP are the four distinct forms of DP, according to the theory (10). Except for *Sama-dhatu Prakriti*, other DP persons are highly susceptible to their respective dosha dominating disorders. For example, Acharaya Caraka in Roganika Vimanadhyaya, the sixth chapter of Charaka Vimanasthana, demonstrates distinct DP persons' eating habits, lifestyle regimens, and preferred medications (11). In Rogabhishagjiteeyadhyaya, all of the phenotypic characteristics are given in accordance with their corresponding *Dosha* (12).

Acharya Sushruta says that *Prakriti* is the temperament of persons, maybe seven different types, according to the deranged *Dosha* of the body involved there, either individually or in the combination of two or of all the three together (13). The *Prakriti* of a man is determined by the preponderance of *Dosha* at the time of fertilization and is marked by the predominant *Dosha* (14), composed by *Panchamahabhutas*, namely *Prithvi* (Earth), *Ap* (water), *Tejo* (fire), *Vayu* (air), and *Akasha* (ether) (15). Health is defined as the balance of three *doshas*, whereas disease is defined as the disruption of these three *doshas* (16). According to

some authors, this constitutional *dosha* (*Sukshma*) remains constant, and they are different from the *dosha* (*Sthula*) that can vary. According to acharya Vagbhata *Vata*, *Pitta*, and *Kapha Prakriti* are said to be inferior, medium, and superior respectively, whereas *Samadhatu Prakriti* is described as the super most in its standard and quality and all the *Dwandaja* (mixed with the predominance of any of the two *Doshas*) are considered to be condemnable (17).

In addition to the *Dosha*, *Jati* (Caste), *Kula* (family), *Desha* (place), *Kala* (period), and *Vaya* (age) have a significant contribution to the *Prakriti* of an individual. In the light of the above fact, Charaka has described six kinds of *Prakriti*, namely, *Jatiprasakta*, *Kulaprasakta*, *Deshanupatini*, *Kalanupatini*, *Vayanupatini*, and *Pratyatmaniyata* (self-character of an individual) (18).

With the view to have some idea for the identification of the *Prakriti*, some of the general features of the *Prakriti* based on the predominance of *Dosha* are given below:

Vata Prakriti (19, 20, 21)

The following characteristics have been described for a person partaking the *Vataja* type of constitution. Such persons possess disproportionate and underdeveloped general physique, flat and depressed chest, marked the prominence of veins and tendons comparatively few moles, dark and dusty skin tone, dry, cracked and rough skin, dry hard lustreless and thin eyelashes, minimum prominence of eye-balls, dry and dirty conjunctiva, cracked and rough nails. *Vataja Prakriti* people will have a poor appetite and digestive capacity, irregular dietary patterns, high food intake, lesser thirst, lesser formation of urine, dry, hard and smaller stools, less sweat, disturbed sleep, and lower sleep temperature, and least vital capacity. In the psychological measurement, such individuals have a short memory, quick mental grasp, quick retention power, minimum willpower, mental uncertainty, minimum courage, the smallest amount of tolerance, minimum confidence, least boldness, and least power of reasoning.

Pitta Prakriti (22, 23)

People of *Pittaja* constitution are physically medium, kind, and flaccid; proportionately round chest; medium prominence of bony ends, medium muscle tone, fair and copper-colored skin tone; smooth, very soft and wrinkled skin; thin silky brownish hairs; copper brown color eyelashes, medium prominence of eye-ball, moist copper-colored conjunctiva; reddish and soft nails. *Pittaja Prakriti* people will have a good appetite and digestive capacity; comparatively good food intake; maximum thirst; maximum urine formation; yellow and soft stool; excessive sweat; and medium sleep. They have medium temperature and medium vital capacity. In the psychological measurements, *Pittaja Prakriti* people have medium memory, medium willpower, medium mental stability, and medium tolerance.

Kaphaja Prakriti (24, 25)

People of *Kaphaja* constitution physically have well developed, body-build, favorable chest, a minimum visibility of veins and tendons, minimum moles, least prominence of bony ends, maximum muscle tone, soft and smooth skin; dark black colored curly hair; dense hair; thick and black eyelashes; most prominence eye-balls; moist white or blue conjunctiva and bright nails. *Kaphaja Prakriti* people will have a regular and proper appetite and moderate digestive capacity; less food intake; lesser thirst; lesser urinary excretion; soft stool; less sweating; prolonged and good sleep, maximum vital capacity. In the psychological measurements, *Kaphaja Prakriti* people have strong memory but slow grasp, extreme willpower, extreme mental stability, extreme tolerance, maximum courage, good confidence, boldness, and seriousness.

In the mixed constitution, people will have mixed characters representing the three *doshas* and, according to the relatively mixed types, may be determined. If the features of any two constitutions mentioned above are associated with the same individual, it is known as dual constitution i.e., *Dwandwaja Prakriti*. They may be *Vata-Pitta*, *Vata-Kapha*, and *Pitta-Kapha*. When all the *doshas* are in an equal range from the beginning of life, it is considered *Sreshtha Prakriti* or *Samadhata Prakriti*-a good constitution i.e. The best one.

In nut-shell, it can be said that the development of body, skin tone, physical characters, body movements, actions, sleep patterns, digestive capacity, food intake, thirst, urine, and other physiological factors, health or ill health, personal habits, behavior, sexual poser, ability to produce children, psychological and sociological characters are closely related to the

constitution of a particular individual. Thus, the assessment of DP of a person or patient aids a physician in prescribing a suitable diet, evaluating digestion capacity, Strength, Sleep, disease susceptibility, disease severity, selection of drug, procedure, and dosage *Anupana* etc.

Importance of DP in disease susceptibility

The analysis of DP is like a key or a secret code that unlocks the mysteries of illnesses that a person is susceptible to. In ayurvedic literature, it is also documented that the susceptibility and severity of the disease may depend upon the DP. It is stated that an individual is more prone to the diseases influenced by the same *dosha* of his *Prakriti*, based on the presence of potent and similar aetiologies (26). For example. *Kapha* aggravating etiological factors cause severe *Kapha* dominant diseases in *Kapha* predominant DP individuals easily and quickly when compared with other DP individuals. Similarly, if a person with *Vataja Prakriti* consumes *Ahara-vihara* (Food and routine) that stimulates *Vata*, he would be susceptible to *Vataja* sickness, which is difficult to treat because of the *Prakriti's dosha* dominance. *Vataja Prakriti* people are more susceptible to ailments caused by vitiated *Vata*, according to this theory. Similarly, a *Pittaja Prakriti* person is more susceptible to *Pittaja* vitiation problems, just as a *Kaphaja* person is. The chances of susceptibility to various disorders are decreasing for *Vata*, *Pitta*, and *Kapha Prakriti*, respectively, as the *Bala* and *Ayu* are increased (27). The probable Deha-Prakriti based disease susceptibility is portrayed in Table-1.

Table 1: Examples of disease conditions for Doshaja individuals prone to

Sr. No.	Vata	Pitta	Kapha
1	<i>Sandhivata</i> (Osteoarthritis), <i>Asthi saushirya</i> (Osteoporosis), <i>Ashti Bhaghna</i> (Fractures), <i>Amavata</i> (Rheumatoid Arthritis)	<i>Amlapitta</i> (Acidity)	<i>Sthaulya</i> (Obesity)
2	<i>Krimidanta</i> (Dental Cavities), <i>Asthidhatu Kshaya</i> (Calcium deficiency)	<i>Pitta Vriddhi</i> (Inflammatory conditions)	Hypothyroidism
3	<i>Antragata Vikaras</i> (Diseases related to the intestine)	<i>Akala</i> or <i>Shighra Vardhakya</i> (Early aging)	<i>Prameha</i> (Diabetes)
4	<i>Kesha-Sphutana</i> (Splitting of hair), <i>Keshapata</i> (hair fall)	<i>Akala Palitya</i> (Premature greying of hair)	<i>Andashaya Granthi</i> (PCOS-Poly Cystic Ovarian Syndrome)
5	<i>Dhamani-Pratichaya</i> (Atherosclerosis)	<i>Twak vikaras</i> (Skin diseases, <i>Akala vali-Palita</i> (premature wrinkles), <i>Yuvana-Pidika</i> (pimples)	<i>Dhamani-Pratichaya</i> (Atherosclerosis)
6	<i>Nakha Vikaras</i> (Nail disorders), <i>Kunakha</i> (chipping of nails)	<i>Raktapitta</i> (Bleeding disorders)	<i>Shweta-pradara</i> Menstrual irregularities
7	<i>Kuposhanajanya Vikaras</i> (Underweight, malnourishment)	<i>Arshas</i> (Hemorrhoids), <i>Sirajagranthi</i> (varicosities)	<i>Asyasukha janya Vikaras</i> (Disorders related to sedentary life)

Importance of DP in disease prognosis

The prognosis of an illness may also be predicted by assessing DP. *Sadhya Vyadhi* (curable disease) is the sickness afflicting *Hetu* (etiology), *Purvaroop* (premonitory symptoms), and *Rupa* (signs & symptoms), and which is distinct from DP in that it causes *Alpa-*

Bala (a lack of strength). *Kashtasadhya* (difficulty to cure) is an illness if *Hetu*, *Purvaroop*, and *Rupa* are of *Madhyama Bala* and one of the *Kala*, *Prakriti*, or *Dushya* has the likeness to *Vikarajanak Dosha* (difficulty to cure).

Discussion

DP-Vyadhikhamatwa (resistance to diseases)

Ayurveda compendia claim that the disease susceptibility to various infectious diseases increases from *Kapha*, *Pitta*, and *Vata* predominant DP individuals as their strength and immunity are decreased similarly. It has been revalidated by Rotti et al with their work. They explored that the expression of CD markers such CD14 (monocytes), CD25 (activated B cells), and CD56 (Natural killer cells) differed significantly across various *Prakriti* groups. When compared to other *Prakriti* groups, CD25 and CD56 were found to be overexpressed only in samples taken from patients with *Kapha-Prakriti*. In *Pitta Prakriti* samples, CD14 levels were slightly elevated (28). Devang P and Baghel AS have reported that *Kapha-Pittaja*, followed by *Pitta-Kaphaja Prakriti* volunteers, were found to be having strong *Vyadhikshamatva*. In addition, some of the hematological markers, immunological markers such as Ig-G, and Ig-M were measured along with the correlation of *Deha-Prakriti*. Overall, the lowest Hb level (10.71gm%) was found in *Vata-Pittaja Prakriti*. The highest mean WBC count and Neutrophils were found in *Pitta-Kaphaja Prakriti*. No significant change in Lymphocytes and Monocytes, less mean value of eosinophils found in *Vata-Pittaja Prakriti*, mean RBC (3.95 mil/mm³) was less in *Vata-Pittaja Prakriti* than *Vata-Kaphaja Prakriti* (4.90 mil/mm³) (29).

DP-NIDDM (Non-Insulin Dependant Diabetes Mellitus)

As per the literature, it can be assumed that *Kapha* and its association DP will be prevalent in type 2 diabetes mellitus. Rohit Sharma and Prajapati PK have reported through a cross-sectional survey study that *Vata* and *Kapha* predominant DP, *Rajasa* and *Tamasa* predominant *Manasa Prakriti* (MP) are prevalent in the Type 2 diabetes population of Saurashtra region (30). Madhava S S et al. reported that type 2 Diabetes majorly consists *Pitta*, followed by *Pitta-Kapha*, and *Vata-Pitta* DP in the study population (31). Similarly, Hetal Amin et al., through their study reported that Type-2 Diabetes mellitus is prevalent in *Kapha* predominant DP, *Tamasa* predominant MP (32). Gupta A et al. reported that the *Kapha* or *Kapha-Pittaja Prakriti* were associated and found to be strong risk factors for type 2 diabetes. MTHFR C677T was associated with type 2 diabetes where the major CC genotype was found to be a risk for type 2 diabetes. A1298C was not associated with type 2 diabetes. None of the *Prakriti* was associated with C677T and A1298C variants (33). CYP2C19 genotyping (Phase I DME-drug-metabolizing enzyme) was shown to be significantly associated with the main *Prakriti* type classes by Yogita Godke et al. *Pitta Prakriti* has a high proportion of the EM (extensive metabolizer) genotype (1/1, 1/2, 1/3). Only *Pitta Prakriti* had the EM-specific genotype (1/3). A higher percentage of people with the PM (poor metabolism) genotype (2/2, 2/3, 3/3) have *Kapha Prakriti* (31%) than *Vata* (12%) or *Pitta Prakriti* (31%). In *Kapha Prakriti*, the PM genotype (2/3) was shown to be significant (odds ratio = 3.5, P = .008). Fast

and slow metabolism were shown to be a primary distinguishing and distinctive trait of *Prakriti* genotypes, according to investigators(34). The findings are establishing that *Kaphaja* Predominant DP individuals are easily prone to get afflicted with Type 2 diabetes.

Aminben H and Sharma R observed that patients with *Kapha*-dominant *Prakriti* had higher fasting and postprandial blood sugar, cholesterol, triglycerides, high-density lipoprotein, and urea and creatinine serum levels than other DP patients in their research. *Pitta*-dominant *Prakritis* had greater levels of alkaline phosphatase (ALP), SGPT, and SGOT than other DPs, although they were still within the normal range. A greater blood protein, serum albumin, and serum globulin level were found in patients with *Vata* dominant *Prakriti*, however, the results were still within the normal range (35). Diabetic patients were shown to be more likely to belong to *Pitta* and *Kapha Prakriti* groups than *Vata* and *Kapha Prakriti* groups, according to Banerjee et al. Individuals in the three groups varied dramatically in terms of their levels of renal enzymes, hepatic enzymes, and lipid profiles. Researchers discovered that those in the *Kapha* and *Pitta doshas* were the most vulnerable population with an increased risk of complications from Type 2 diabetes. This study's findings indicated that *Pitta Prakriti* was a relatively safe group against the hepatic problem, but the *Kapha* group was more likely to suffer from renal and hepatic disorders. *Vata Prakriti* was the least susceptible to heart disease because of their high HDL levels and low levels of the other harmful cholesterol and triglycerides (36).

DP-Obesity and Dyslipidemia

Kapha predominant DP and *Tamasa* MP are prevalent in obese patients. The biochemical and anthropometric parameters are varied in different DP individuals. Among them, the blood cholesterol, triglycerides, high-density lipoprotein, low-density lipoprotein, and very-low-density lipoprotein levels were all greater in the *Kapha* dominating *Prakriti* group than in the other *Prakriti* groups. It was shown that in *Pitta* dominant *Prakriti*, the levels of SGPT (serum glutamate-pyruvate transaminase), and SGOT (serum glutamic oxaloacetic transaminase) were higher, but still within the normal range. Serum protein, albumin, and globulin concentrations were greater in those with *Vata* dominating *Prakriti*, but still within acceptable limits in these individuals (37).

DP-Hypertension

Pittaja DP and *Rajasa* MP are common among hypertensive persons in Jamnagar district, according to Aminben H et al. According to Ayurveda's underlying theory, all illness stems from the *Prajnaparadha* and *Asatmyendriyarthasamyoga*, which show that the mind is involved. Hypertension is linked to *Rajas* and *Tamas*, two of the three *doshas* of the mind. It causes symptoms such as *Bhrama*, *Tandra*, *Murcha*, and *Tamodarshana* when *Rajas* and *Tamas* are vitiated. Patients with hypertension often exhibit these signs and symptoms.

As a result, the predominant *dosha* in a person's *Sharirika* or *manasika prakriti* is more likely to develop the ailment associated with that *dosha* (38). It aptly indicates that *Kapha* dominant DP individuals are prone to afflict with dyslipidemia.

DP-Coronary Artery Disease (CAD)

Mahalle NP et al. observed that the majority of the CAD (Coronary Artery Disease) patients were found to have *Kapha-Vata* DP. They also established that there was a high correlation between risk variables (diabetes, hypertension, and dyslipidemia), insulin resistance, and serum magnesium with the *VK Prakriti* type. Compared to other *Prakriti*, *Vata-Kaphaja* was substantially linked to CAD risk variables whereas another *Prakriti* was neither linked nor exhibited a reverse correlation (39). These research works are delineated that *Kapha* DP alone or its association with *Vata* and *Pitta* are prone to metabolic diseases such as dyslipidemia, Obesity, type 2 diabetes, and Coronary artery diseases.

DP-Cancer

Venkatraghavan et al. found that majority of the cancer patients were found to have *Pittaja* DP, followed by *Kapha DP* than healthy individuals. They reported that the involvement of *Pitta* in DP is consistently more in cancer patients (40). Cancer's genesis remains a mystery, although according to Ayurveda, it is a disease in which three *doshas*, *Mamsa*, *Rakta*, and *Medas*, work as primary *dushyas*. For *Arbuda* (tumour), symptoms and therapy are the same as those for *Granthi* (cyst). *Arbuda* is dominated by *Kapha* and *Medas*. Ayurveda's prognosis for *arbuda* was not based on the type of the cells, but rather on the location of the illness and the tissue involved. Tumors in the *marmas* (essential organs) and those originating in the *rakta* or *mamsa* are inoperable. *Sadhya* (easily curable) or *kruchrasadhya* (difficulty to cure) tumours of *medas* origin may be assumed to be *medas* tumours indirectly (unable or of difficult cure). When it comes to tissues, bones, *rakta*, and *Kapha* all reside in one place: the body's tissues. *Vata prakriti* people, *Pitta prakriti* people, and *Kapha prakriti* people are more susceptible to *Vatika*, *Paittika*, and *Slaishmika* disorders based on this general guideline and previous studies. Bone tissue illnesses affect *Vatika*, *Pitta*, and *Kapha prakritis*, respectively. People with *Pitta prakriti* or *Kapha prakriti* constitutions may be more susceptible to *mamsa* involvement in the condition. In terms of cancer incidence, *Kapha-dominant prakriti* is second only to *Pitta-dominant prakriti*. From the foregoing, it is clear that *Pitta-dominant prakriti* has the highest rate of cancer, followed by *Kapha-dominant*. They observed that *Pitta prakriti*, which has a high risk of cancer, is followed by *Kapha*, which has a low risk of cancer of the soft tissues.

DP-Hyperacidity

The study conducted by Poorvi Trivedi (41) on *Prakriti* and *Amlapitta* (~GERD or Hyperacidity) revealed that most of the patients belonged to *Vata-Pittaja* and *Pitta-Kaphaja Prakritis*, which alarms the

involvement of *Pitta dosha* in the onset of *Amlapitta*. In their study, most of the patients came under the age group of 31-40 years, which is the *Pitta* dominant period of life. Due to the predominance of *Vata dosha*, fluctuations in the digestive power commence, and that causes irregularity in the process of digestion. Additionally, the aggravated *Kapha dosha* also helps to hamper the digestive capacity. Hence, all these factors simultaneously cause *Vidagdhatta* (indigestion) in consumed food, thereby the manifestation of *Amlapitta* takes place (42). Most of the patients were found to have *Rajasa-Tamasika* MP, who were more likely to consume *Katu* (Pungent), *Amla* (sour), *Vidahi* (hot) type of food substances and follow irregular dietary patterns, which resulted in alterations of the digestive process. Moreover, *Rajas* predominant MP people will be quickly afflicted with various emotional factors like anger, anxiety, etc. which stimulates the excessive secretion of gastric juices that causes hyperacidity. At the same time, due to ignorance of *Tamo guna*, people neglect the quality and quantity of food to be consumed and prefer to eat *Paryushita* (stale), *Dushita Ahara* (spoiled food). They are more tend to follow *Diwaswapna* (day-sleep) and *Vegadharana* (suppression of natural urges), which eventually causes several digestive issues, *Amlapitta* is one of them.

DP- Hairfall

Sujata D and Hitesh V observed that the majority of the *Khalitya* (hair fall) patients of Jamanagar district were found to have *Pitta* DP followed by *Vata* and *Kapha* DP. They were also observed that *Vata* predominant *Prakriti* person follows more *Vata* provoking lifestyle like late night sleeping, taking stale food, more consumption of beverages, etc. *Pitta* dominant *Prakriti* person follows more *Pitta* aggravating lifestyle like extra intake of salt, taking *Lavana*, *Amla*, *Katu Rasa Pradhana Ahara*, outside food, taking frequent junk food, *Kapha Pradhana Prakriti* person follows more *Kapha Vardhaka* lifestyle like *Divasvapa*, drinking water immediately after food, *Avyayama* etc. which creates *Vikruta Dosha* in their body so it helps to manifest *Khalitya* (43).

DP-Metabolic Pathway Markers

The biosynthesis of steroidal hormones, the metabolism of amino acids, and the metabolism of arachidonic acid were found to be major pathways that vary with different constitutions by Amey S et al. using Cytoscape's meta scope and JEPETTO plugins. *Kapha* dominant body constitutions are characterized by an abundance of metabolic processes that utilize aromatic amino acids, sphingolipids, and pyrimidine nucleotides. Branched-chain amino acid and glycerolipid catabolism processes were more prevalent in *Pitta*-type individuals than in those of other somatotypes. Caffeine, arachidonic acid, and hydrogen peroxide metabolomics pathways were revealed to be prevalent in *Vata Prakriti*. For *Vata*, the oxidative stress and neurotransmission, as well as BCAA catabolic, androgen, xenobiotics metabolic processes in *Pitta*, and aromatic amino acids, sphingolipid, and the pyrimidine metabolic processes in

Kapha Prakriti, were the prominent marker pathways (44).

DP-Skin Diseases

Hetal A was observed that the majority of psoriasis patients were found to have *Kapha* and *Pitta* predominant DP, *Tamas* predominant MP (45). *Pitta dosha* is closely related to *Raktadhatu*. The etiological factors responsible for the vitiation of *Pitta dosha* and *Raktadhatu* are similar hence if any person consumes *Katu* (pungent), *Amla* (sour), *Ushna* (hot), *Tikshna* (sharp), *Vistra* (foul smell) like food substances that lead to the vitiation of *Raktadhatu*, which results in the form of Skin diseases (46). The predominance of *Kapha dosha* and *Tamo guna*, *Mohamsha* (ignorance) will affect the mind, which unable to avoid some etiological factors like consumption of incompatible food, unhygienic food etc. hence, they are more prone to Psoriasis like psycho-somatic skin diseases (47). Madumita et al. (48) and Ritika et al. (49) found that *Vata-Pitta* predominant *Prakriti* people occupied a significant portion of study participants, followed by *Kapha-Pitta* predominant *Prakriti*. As *Vata* is a dominant *dosha* in the pathogenesis of the diseases, *Vyanga* or *Twakvaivarnyata* (melasma or hyperpigmentation), and also it may be difficult to cure in *Vata* predominant people who may be the reason for not getting a complete relief also. It was also observed that the *Pitta dosha* involvement was found in a majority of patients as it indicates the aggravation of *Pitta dosha* leading to *Rakta-Dhatudushti* (vitiation of blood tissue) and also triggering the process of auto-immunity at skin lesions which may be the background theory for the manifestation of *Twakvaivarnyata* or *Vyanga* (50, 51). Deepak Vyas et al. evaluated the skin hydration levels with skin diagnostic SD-27 instrument. The majority of *Vata* and *Pitta* dominating *Prakriti* volunteers had very dry skin, while the majority of *Kapha Prakriti* volunteers had normal to better-hydrated skin. As a result, people with *Vata* or *Pitta* dominant *Prakriti* constitutions have skin that is more prone to dryness, discoloration, and itching-related skin diseases, whereas people with *Kapha* dominant *Prakriti* constitutions have skin that is less prone to dryness, discoloration, and itching-related skin diseases. (52)

Role of DP in the causation of *Amavata* (RA)

In the genetics of complex disease conditions, phenotypic variation is a significant restriction in today's sophisticated medicine, which is the primary limitation, and it necessitates the incorporation of alternate and combinational therapies. Ayurveda is a comprehensive Indian medical system practiced for thousands of years, will fulfill this lacuna with its unique approach-“DP,” as it distinguishes each individual. In accordance with DP, each person is a distinct entity, having a unique physical and psychological makeup that dictates how they operate biologically.

The present disease, *Amavata*, is correlated with Rheumatoid Arthritis (RA) in contemporary medicine. The etiological factors of *Amavata* include

Viruddhahara (incompatible diet), *Viruddhachesthta* (incompatible regimen), *Guru-Snigdha Bhojana* (consumption of heavy and oily food), *Nischeshta* (sedentary lifestyle), and *Mandagni* (hampered digestive power), which results in indigestion and produces *Ama* (undigested material) (53). The pathogenesis or *Samprapti* of *Amavata* illustrates that Joint discomfort and swelling, fever, stiffness, lack of appetite, and body aches may all ensue if this *Ama* is mixed with an aggravated *Vata dosha* as it is being circulated throughout the body (54). Increases in the degree of pain, stiffness, and other symptoms are possible as the condition advances, leading to deformities and impairments.

Ayurvedic literature advocates that *Vata Pradhana* DP people are further predisposed to joint diseases (55). Moreover, the aggravation of *Vata* is very predominant in *Vata Pradhana* DP people when compared with the *Pitta* and *Kapha* predominant DP people. The *Samprapti* of *Amavata* reveals that the formation of *Ama* is another central point, which envelops several reasons. By default, *Kapha Pradhana* and *Vata Pradhana* DP individuals have decreased and irregular digestive mechanisms, respectively (56). Hence, *Kapha* and *Vata Pradhana* DP individuals are more prone to the formation of *Ama* in their body, compared with *Pitta Pradhana* DP individuals as their digestive capacity is more.

Ayurvedic literature delineated that even though an individual who consumes *Pathya* (Wholesome) and *Matravat* (appropriate quantity i.e., neither less nor excess) *Ahara*, if his or her mind is afflicted with *Chinta* (worry), *Bhaya* (fear), *Shoka* (grief), *Krodha* (anger), *Dukha* (irritable), the *Ama* will be formed in their body (57). The psychological factors above would easily afflict the *Vata* predominant DP than the other two remaining DP individuals. By default, *Vata* predominant DP individuals have irregular and disturbed sleep patterns, which may also contribute to the pathogenesis of *Amavata* (58).

On these grounds mentioned above, it can be assumed that *Vata Pradhana* DP individuals are more prone to get the disease *Amavata*, and When *Vata* is associated with *Kapha*, the chances of occurrence or incidence are more. It is revalidated by a Case-control study carried out on Jamnagar population that the *Vata* predominant DP individuals are found in the RA group, whereas *Kapha* and *Pitta* individuals are found more in the healthy population. Mahalle NP et al reported that people with *Vata-Kapha* and *Kapha Prakriti* were discovered to have higher levels of IL6, TNF alpha, hsCRP in their bloodstreams (59). Moreover, the incidence is more in *Vata-Kapha* DP, followed by Single *Vata* predominant and *Vata-Pittaja* (60). Another study conducted on the north Indian population covering the states of Delhi, Uttar Pradesh, Punjab, Haryana, Himachal Pradesh and Bihar by Juyal RC et al., found that Inflammatory genes like IL1b (C-C-C haplotype) and CD40 (rs4810485 allelic) seem to be the determinants in *Vata* predominant DP whereas oxidative stress pathway genes are observed in *Pitta* (SOD3 rs699473, and PON1 rs662) and *Kapha* (SOD3

rs2536512, genotypic) predominant DP. Their study suggested that the severity of the disease may also varied in subgroups (61).

Variability in the severity of *Amavata* according to DP

Not only the disease predisposition but disease severity also varies. In *Vata Pradhana* DP individuals, the severity is greater, whereas it is less severe in *Kapha* predominant DP individuals. It can be found that other clinical symptoms like *Jwara* (fever), *Shotha* (swelling), *Stabdhatata* (stiffness), and *Shula* (extent of pain) may significantly vary among the three predominant DP people of *Amavata*. For example, *Pitta* predominant DP people will present more tenderness and swelling in the joints. *Kapha* predominant DP people will present with more stiffness, restricted joint movements, whereas *Vata* predominant DP people will have more pain and early bone destruction.

It indicates that the heterogeneity DP may be a suitable or appropriate platform for assessing the risk factors of *Amavata*. *Amavata* is associated with particular DP, case-control research may be developed to confirm the aforementioned literature-based findings. Statistical conclusions may be made using chi-square tests, odds ratios, and logistic regression analysis to identify particular DP and *Amavata* associations. To compare the subjective parameters such as *Sandhi-shula* (joint pain), *Sandhi-shotha* (joint swelling), *Sandhi-stabdhatata* (joint stiffness), *Apaka-shunatangata*, *Jwara* (fever), *Angamarda* (mild pain all over the body), *Gaurava* (heaviness of the body), *Nidranasha* (disturbed sleep), presence of morning stiffness etc., (62) among predominant DP individuals a cross-sectional study can be employed. To compare the objective parameters such as DAS-28 score, disability index, HAQ-36, Duration of morning stiffness, reveals the disease severity in different DP individuals. Comparison of hematological parameters including Hemoglobin, Red Blood Cells count, MCV (Mean Corpuscular Volume), MCH (Mean Corpuscular Hemoglobin), MCHC (Mean Corpuscular Hemoglobin Concentration), PCV (Packed Cell Volume), Complete Urine Examination (CUE), inflammatory markers like ESR, RA factor (Quantitative), CRP (Quantitative), Anti-CCP will explore not only the disease severity but also prevent complications in single *Vataja*, *Vata-Pittaja*, and *Vata-Kaphaja* DP patients of *Amavata*. The radiological findings include soft tissue swelling, reduced joint space, osteoporosis, osteopenia, formation of osteophytes, swan-neck deformity, z-deformity, Boutonniere deformity, ulnar deviation, formation of rheumatoid nodules, can be studied and correlated with the duration of disease and DP. It paves a roadmap to prescribe detailed and accurate treatment modalities, including the *Shodhana* (purificatory) and *Shamana* (palliative) measures. In this way, principles of Ayurveda can be revalidated with the robust evidences.

The findings from observational studies, help to conduct more accurate interventional studies. For example, the effectiveness of *Vaitarana-vasti* in single *Vataja*, *Vata-Pittaja* and *Vata-Kaphaja* DP persons may

be evaluated if the incidence is more prevalent in the *Vata* dominating DP group. Aswathy and A.R.Sharma have evaluated the efficacy of *Ksharavasti* on prevotella species of gut microbiota in the patients of RA through an RCT (63). The previous works reported that the *Prevotella copri* and *prevotella histicola* are prevalent in the gut microbiota of the American and Japanese population, whereas *prevotella copri* has abundant in the healthy Indian population (64, 65). Their research work revealed that the administration and post-treatment of *Ksharavasti* the *prevotella copri* became abundant in the gut microbiota quantitatively. Similar kinds of studies can be conducted incorporating different DP of RA patients covering mass population at multiple centers of India, which provides a clear picture of gut microbiota and their variations in different DP patients of RA. As a result of this comparative interventional research, Prakriti-Based Medicine (PBM) may be prescribed for each unique DP patient of *Amavata*, which will be a significant breakthrough in Ayurveda's ability to treat patients at the *Amavata* clinical setup. Dietary patterns and gut microbiota in diverse places with a substantial population may be connected to DP to enable patients with *Amavata* to design a suitable diet chart, leading to an enhanced quality of life (QOL). This technique may be used for other non-communicable illnesses as well.

Conclusion

DP plays an essential role in predicting, diagnosing, assessing disease severity and prognosis. However, these literature-based claims need to be revalidated by adding multiple kinds of clinical research that cover a broad population at a multi-centric level. A case-control study will be the best choice to trace out the susceptibility of specific DP with a particular disease, whereas a cross-sectional study will be the best one to compare the severity and prognosis in that distinct predominant DP group. It is thus possible to generate PBM or personalized medication, which is "the appropriate medicine to a specific individual at a certain moment, with the exact dose and the perfect quality." As a result, humanity's well-being may be accomplished.

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