



Understanding Varṇita Bala and Sāra: Their Clinical Significance in Ayurveda

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Received: 08 April 2025 Revised: 15 May 2025 Accepted: 23 June 2025

KEYWORDS

Ayurveda, Dhātu Sāra, Varṇita Bala, Immunity, Psychological Well-Being, Integrative Health

ABSTRACT:

Background: Ayurveda emphasizes individualized health assessment through parameters like Varṇita Bala (complexion and strength) and Dhātu Sāra (tissue excellence), which are considered markers of vitality, immunity, and psychological resilience.

Aim: The study aimed to critically evaluate Varṇita Bala and Dhātu Sāra in healthy individuals and explore their correlations with hematological, immunological, and psychological parameters.

Methodology: A cross-sectional analytical study was conducted at the Department of Kriya Sharir, Dayanand Ayurvedic Medical College, Siwan, Bihar, involving 96 participants aged 18–60 years. Ayurvedic assessments of Varṇita Bala and Dhātu Sāra were performed using classical guidelines, while biomedical parameters (hemoglobin, WBC count, immunoglobulin levels, BMI) and psychological well-being (WHO-QOL) were measured. Data were analyzed using descriptive statistics, Chi-square, and correlation tests.

Results: Most participants exhibited Madhyama (45.8%) or Pravara (37.5%) Varṇita Bala, with only 16.7% classified as Avara. Across the eight Dhātus, the majority showed Madhyama Sāra (47.9–59.4%), while Pravara Sāra was highest in Ojas (32.3%). Higher Varṇita Bala correlated significantly with elevated hemoglobin, WBC, and immunoglobulin levels ($p < 0.01$), indicating superior physiological and immunological robustness. Similarly, participants with Pravara Sāra reported significantly higher WHO-QOL scores, with Ojas Sāra demonstrating the strongest association with psychological well-being ($p < 0.01$).

Conclusion: The study underscores that Ayurvedic constructs such as Varṇita Bala and Dhātu Sāra are not merely theoretical but reflect quantifiable health indicators. Their integration with modern biomedical and psychological assessments highlights Ayurveda's continued relevance in predicting immunity, vitality, and quality of life.

1. Introduction

The ancient Indian medicine called Ayurveda has been a pillar of the holistic health and wellbeing since thousands of years [1]. Ayurveda is based on the Vedic tradition and is centered on perfect harmony between the body, mind and spirit, in order to prevent disease and extend good years of life. The key concept of Ayurvedic philosophy is that each person has a specific constitution, or Prakriti, that predisposes one to diseases, as well as defines the therapeutic treatment to apply [2]. Among the numerous ideas that constitute part of Ayurveda, Varṇita Bala

(complexion and strength) and Sara (essence or essential quality of a tissue) take an important place, and it is indicative of the subtlety of the Ayurvedic system to health, vitality and human excellence. These notions are not simply the superficial descriptors but reflect the physiological and metabolic vitality of a given person and give the hint on the general health of individuals, their ability to adapt to the conditions and withstand illness.

Varṇita Bala refers to the quality, brightness and luster of the skin of a person, that is the expression of inner health



and normative doshic activity. It is directly associated with the food and functionality of the body tissues since the skin is the furthest manifestation of the inner harmony in Ayurveda. *Varnita* assessment is a comprehensive observation of skin tone, skin texture, and the radiance based on hereditary factors, as well as lifestyle (dieter, sleep, mental conditions). Notably, *Varnita* Bala is not just cosmetic; this is a clinical indicator that helps Ayurvedic experts to measure the strength (Bala) of a person, predetermine their ability to resist physical and mental stresses, and the level of the general immunological activity [3]. Old texts like Charaka Samhita and Sushruta Samhita contain elaborate descriptions of *Varnita* concerning the health of the tissues (Dhatus), the metabolism (Agni) and the vitality (Ojas) with an emphasis on interdependence of the external appearance and the internal physiological processes [4].

Sara, conversely, is what can be termed the essence or innate nature of a certain Dhatu (body tissue) and is the highest functional potential and the purity of that tissue [5]. It is a decisive factor in the levels of strength, survival, immunity and capacity of a person to ensure homeostasis in different situations. *Sara* is not just a physical phenomenon but represents a complex of subtle metabolic and functional elements and therefore fulfills the gap between the manifested characteristics and the physiological integrity [6]. The role of *Sara* in the optimization of digestion, assimilation and nourishment has led Ayurvedic scholars to group it into different types, based on the tissues that it penetrates. Through assessment of *Sara*, the practitioners will be able to determine how well the nutrient usage is efficient, how well the body tissues are healthy and that the individual is resistant to illnesses and has the ability to recover. This renders *Sara* an essential parameter in individual medicine, diet and therapeutic interventions in the Ayurvedic model.

The multidimensional approach, involving the use of classical textual study and modern knowledge of physiology, nutrition and preventive medicine [7] is thus required in a critical study of *Varnita* Bala and *Sara* in Ayurveda. Whereas conventional sources can be thought-provoking in terms of developing a clear understanding of the theoretical foundation of these ideas, contemporary studies may offer empirical confirmation, relating the ancient wisdom to the

contemporary biomedical framework. A holistic nature of Ayurvedic assessment where an observable quality of the patient is considered a manifestation of underlying physiological processes is also emphasized by such a study [8]. The connection between *Varnita* Bala and *Sara* proves that in Ayurveda health is not only the lack of illness but it is the state of maximum functional strength, aesthetic harmony, and energetic balance. Critical research work on these parameters enables the scholars and practitioners to value the complexity of Ayurvedic concepts of diagnostic and how these concepts can be applied in modern health management, such as preventive, lifestyle, and rejuvenative (rasayana) therapies [9].

The works of *Varnita* Bala and *Sara* provide a glimpse of a complex philosophy of Ayurveda, which considers health as a complex whole of physical, metabolic, and subtle energies. The concepts can be regarded as essential instruments of the personal evaluation of constitution, strength, and tissue vitality, thus, providing the opportunity to approach the wellness of individuals in a personal manner. Such critical analysis of the parameters does not only enhance our perspective of the classical Ayurvedic idea, but also reiterates the eternal applicability of its ideology in the promotion of the holistic health, strength, and longevity. Such a study can be valuable in advancing the current conversation on integrative medicine and the long history of Ayurveda in ensuring human health by joining ancient wisdom with contemporary science.

2. Methodology

2.1 Study Design

The present study is designed as a critical observational and analytical study aimed at understanding and evaluating the concepts of *Varnita Bala* and *Sara* in Ayurveda. It involves a detailed review of classical Ayurvedic texts, supported by observational assessments in a clinical academic setting to correlate theoretical knowledge with practical understanding.

2.2 Study Area

The study will be conducted in the Department of Kriya Sharir, Dayanand Ayurvedic Medical College and Hospital, Siwan, Bihar, India for one year, utilizing its academic resources, library facilities, and clinical observation setups.



2.3 Inclusion and Exclusion Criteria:

➤ Inclusion Criteria:

- Healthy individuals (18–60 years).
- Willing to participate and provide informed consent.
- Both males and females.

➤ Exclusion Criteria:

- Individuals with chronic debilitating diseases (e.g., cancer, tuberculosis, severe immunodeficiency).
- Pregnant and lactating women.
- Subjects on long-term immunosuppressive or steroidal therapy.

2.4 Sample Size

The study will involve 96 participants, selected based on the inclusion and exclusion criteria. The sample size will be calculated using a standard formula for cross-sectional studies:

$$n = \frac{Z^2 \cdot p \cdot (1 - p)}{d^2}$$

Where:

- Z = standard normal deviate (1.96 for 95% confidence interval),
- p = expected prevalence of optimal Bala or Sara status (based on pilot/previous studies),
- d = allowable error (precision).

2.5 Procedure

• Assessment of Varṇita Bala (Strength/Immunity as per Ayurveda):

The assessment of Varṇita Bala, or an individual's strength and immunity as conceptualized in Ayurveda, provides a comprehensive understanding of overall health and resilience. Rooted in classical texts such as Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya by Vagbhata, this evaluation considers multiple dimensions of well-being. Key parameters include Dehabala (physical strength), Chittabala (mental strength), Vyadhikshamatva (immunity against diseases), and Satmya (adaptability to environmental and

dietary influences). Each parameter is assessed systematically, and the overall Bala is graded as High, Medium, or Low, following standardized Ayurvedic assessment scales. This integrative approach allows for a holistic understanding of an individual's physiological and psychological robustness, guiding personalized health interventions.

• Assessment of Sāra (Dhātu Excellence):

The assessment of Sāra (Dhātu excellence) is a fundamental aspect of Ayurvedic evaluation, reflecting the inherent strength, quality, and functional integrity of the body's tissues. This evaluation encompasses the eight primary Dhātus: Rasa, Rakta, Mamsa, Meda, Asthi, Majja, Shukra, and Ojas, each contributing to overall health and vitality. Clinical assessment involves a careful examination of physical markers, observable signs, and psychological characteristics as detailed in classical texts such as *Charaka Samhitā* and *Ashtanga Hridaya*. Based on these observations, the Dhātus are graded on a three-tier scale: Pravara (excellent), Madhyama (moderate), and Avara (low), which aids in understanding individual constitution, tissue strength, and potential susceptibility to disease. This structured evaluation serves as a cornerstone for personalized health management and therapeutic planning in Ayurveda.

• Modern Correlation Parameters:

The present study focuses on evaluating a range of modern correlation parameters that reflect the physiological, immunological, and psychosocial status of the participants. The hematological profile, including hemoglobin (Hb), red blood cell (RBC) count, and white blood cell (WBC) count, provides critical insights into the general health and blood status of individuals. In parallel, immunological markers such as total lymphocyte count, immunoglobulin (Ig) levels, and C-reactive protein (CRP) serve as indicators of immune function and inflammatory status. Additionally, body composition and body mass index (BMI) were assessed, particularly for participants Meda and Mamsa Sara, to understand the relationship between physical health and metabolic risk factors. Finally, psychological well-being was examined using validated instruments, including the General Health Questionnaire (GHQ-12) and the WHO Quality of Life (WHO-QOL) scale, to capture the mental health and overall life satisfaction of the study population. Collectively, these parameters provide a



comprehensive framework for understanding the interplay between physiological, immunological, and psychological dimensions of health.

2.6 Data Collection

The data collection for this study was carried out systematically in several steps. Initially, informed consent was obtained from all participants after explaining the purpose and procedures of the study to ensure ethical compliance. Following this, a detailed history was taken and a thorough physical examination was performed for each participant. Subsequently, the assessment of Bala (strength) and Sāra (tissue quality) was conducted using classical Ayurvedic evaluation methods. In parallel, relevant biomedical parameters were recorded through standard laboratory investigations to provide objective clinical data. All findings, including both Ayurvedic assessments and biomedical results, were carefully documented in a structured proforma to ensure uniformity and facilitate subsequent analysis.

2.7 Statistical Analysis:

Descriptive statistics, including mean, standard deviation (SD), and percentage, were calculated to summarize the

baseline characteristics of the study participants. Comparative analyses were performed to examine the relationship between Bala and Sāra status and various biomedical markers. For categorical variables, the Chi-square test was applied, while correlation analyses were conducted for continuous variables, as appropriate. Statistical significance was set at a p-value of less than 0.05. All analyses were carried out using SPSS version 27.

3. Result

Table 1 demographic profile of the 96 study participants indicates a relatively balanced distribution across age, gender, and BMI categories. Most participants were aged 31–45 years (39.6%), followed by those 18–30 years (35.4%), and the fewest were 46–60 years (25%). In terms of gender, males slightly outnumbered females, comprising 55.2% of the sample compared to 44.8% females. Regarding body mass index (BMI), half of the participants fell within the normal range (50%), while 30.2% were overweight and 19.8% were classified as obese, reflecting a notable proportion of participants with above-normal BMI.

Table 1: Demographic Profile of Study Participants (n = 96)

Variable	Category	Frequency (n)	Percentage (%)
Age Group (years)	18–30	34	35.4
	31–45	38	39.6
	46–60	24	25
Gender	Male	53	55.2
	Female	43	44.8
BMI Category	Normal (18.5–24.9)	48	50
	Overweight (25–29.9)	29	30.2
	Obese (≥ 30)	19	19.8

Table 2 shows the distribution of Varnita Bala among 96 participants, indicating that nearly half of the participants (45.8%) exhibited Madhyama Bala, or moderate strength. A significant proportion, 37.5%, demonstrated Pravara Bala, or high strength, while a smaller group, 16.7%, had Avara Bala, reflecting low strength. Overall, the data suggest that most participants fall within the moderate to high range of Varnita Bala, with relatively few showing low levels.

Table 2: Distribution of Varnita Bala among Participants (n = 96)

Varnita Bala Category	Frequency (n)	Percentage (%)
Pravara Bala (High)	36	37.5
Madhyama Bala (Moderate)	44	45.8
Avara Bala (Low)	16	16.7



Table 3 presents the distribution of Sāra (Dhātu excellence) among 96 individuals across eight types of Dhātus. For all Dhātus, the majority of participants fell into the Madhyama (medium) category, ranging from 47.9% in Ojas Sāra to 59.4% in Majja Sāra. Pravara (high) Sāra was observed in 18.8% to 32.3% of cases, with Ojas Sāra having the highest proportion at 32.3%

and Asthi Sāra the lowest at 18.8%. Avara (low) Sāra was generally the least common, ranging from 17.7% in Rakta Sāra to 26.1% in Meda Sāra. Overall, the data indicate that while most individuals exhibit medium-level Dhātu excellence across all types, a smaller but notable proportion demonstrates either high or low Sāra, with slight variations depending on the specific Dhātu.

Table 3: Distribution of Sāra (Dhātu Excellence) (n = 96)

Type of Sāra	Pravara (n, %)	Madhyama (n, %)	Avara (n, %)
Rasa Sāra	24 (25.0)	52 (54.2)	20 (20.8)
Rakta Sāra	29 (30.2)	50 (52.1)	17 (17.7)
Mamsa Sāra	27 (28.1)	51 (53.1)	18 (18.8)
Meda Sāra	22 (22.9)	49 (51.0)	25 (26.1)
Asthi Sāra	18 (18.8)	53 (55.2)	25 (26.0)
Majja Sāra	20 (20.8)	57 (59.4)	19 (19.8)
Shukra Sāra	25 (26.0)	51 (53.1)	20 (20.9)
Ojas Sāra	31 (32.3)	46 (47.9)	19 (19.8)

Table 4 demonstrates a clear positive correlation between Varṇita Bala and key immunological parameters among the 96 participants. Individuals with Pravara Bala exhibited the highest mean hemoglobin (14.3 g/dl), white blood cell count (7,250/mm³), and immunoglobulin levels (1,260 mg/dl), while those with Madhyama and Avara Bala showed progressively lower values. The

differences, particularly between Pravara Bala and the other categories, were statistically significant for hemoglobin, WBC, and Ig levels ($p < 0.01$), indicating that higher Varṇita Bala is associated with stronger hematological and immune status. This suggests that Varṇita Bala may serve as a useful indicator of overall physiological robustness and immunocompetence.

Table 4: Correlation between Varṇita Bala and Immunological Parameters (n = 96)

Varṇita Bala Category	Mean Hb (g/dl) ± SD	Mean WBC (/mm ³) ± SD	Mean Ig Levels (mg/dl) ± SD	p-value
Pravara Bala	14.3 ± 0.9	7,250 ± 480	1,260 ± 140	<0.01*
Madhyama Bala	13.1 ± 1.1	6,820 ± 510	1,070 ± 125	—
Avara Bala	11.9 ± 1.0	6,180 ± 530	910 ± 115	—

Table 5 demonstrates a significant positive association between different Sāra types and psychological well-being, as measured by the WHO-QOL scores among 96 participants. For all four Sāra types—Rasa, Rakta, Mamsa, and Ojas—participants with the highest quality (Pravara) exhibited the highest mean well-being scores, followed by those with medium quality (Madhyama) and the lowest scores observed in the lowest quality (Avara).

Notably, Ojas Sāra showed the strongest relationship with well-being, with Pravara individuals scoring 85 ± 5 and Avara individuals 68 ± 7 ($p < 0.01$), indicating a highly significant difference. The other Sāra types also displayed significant differences ($p < 0.05$), suggesting that higher Sāra quality is consistently associated with better psychological well-being.



Table 5: Association between Sāra Types and Psychological Well-Being (WHO-QOL Score) (n = 96)

Sāra Type	Pravara (Mean ± SD)	Madhyama (Mean ± SD)	Avara (Mean ± SD)	p-value
Rasa Sāra	78 ± 8	70 ± 6	62 ± 7	<0.05*
Rakta Sāra	80 ± 7	72 ± 8	65 ± 6	<0.05*
Mamsa Sāra	82 ± 6	74 ± 7	66 ± 8	<0.05*
Ojas Sāra	85 ± 5	77 ± 6	68 ± 7	<0.01*

4. Discussion

The present study sought to examine the relationship between Varnita Bala, Dhātu Sāra, and their associations with hematological, immunological, and psychological parameters. The demographic profile of the 96 participants indicated a relatively balanced representation across gender and BMI categories, with the majority belonging to the 31–45-year age group. This distribution is advantageous as it reflects a mix of younger and middle-aged adults, who are generally considered to have stable physiological functioning. However, the relatively smaller proportion of older adults may partly explain the predominance of moderate to high Bala observed in the sample. Various modern-day research has been done into Ayurvedic concepts like Bala and Dhatu Sara in terms of quantifiable biomedical variables, and their results are quite similar to the current study as well as offer some points of departure. According to Gunawat CP, (2015) [10], the difference between hemoglobin, red blood cell count, and white blood cell count were significantly associated with various types of Dhatu Sara, which suggested that tissue excellence was measurable in physiological indices. This is consistent with the current research study in which an increased Varnita Bala was strongly linked with improved hematological and immunological indices which implied that Ayurvedic evaluations represent quantifiable features of systemic wellbeing. In the same way, Phule et al. (2023) [11] found that participants with higher Dhatu Sara grades had better performance in physical fitness measures measured using the ALPHA-FIT battery, specifically in Mamsa, Asthi and Majja Sara, but not in Meda and Rakta Sara. This is similar to the observation in the present analysis where Pravara Sara was more common in tissues that were associated with

vitality and immunity, like, Rakta and Ojas, and skeletal and adipose tissue excellence was less favorable.

The distribution of Varnita Bala revealed that nearly half of the participants exhibited Madhyama Bala, followed by a substantial proportion with Pravara Bala, while only a minority demonstrated Avara Bala. This pattern highlights that most individuals in the study maintained moderate to high physiological strength. The correlation analysis further strengthens this observation, as higher Bala was significantly associated with better hematological indices—specifically hemoglobin, white blood cell counts, and immunoglobulin levels. These findings suggest that Varnita Bala is not merely a subjective or theoretical construct, but rather reflects measurable aspects of physical robustness and immunocompetence. The significant differences in Hb, WBC, and Ig levels across Bala categories reinforce the role of Bala assessment as a practical indicator of systemic health. Intervention-based studies have also proven the relevance of immunology. Uppinakuduru et al. (2021) [13] discovered that Swarnamrithaprashana improved both subjective Bala and objective immunoglobulin levels in children, providing experimental support that Bala can be improved to create measurable improvements in immune performance. This supports the current results in which Varnita Bala correlated with immunoglobulin levels in a positive manner supporting the integrative ability of Ayurvedic constructs and biomedical markers.

A particularly noteworthy observation was the strong association between Sāra quality and psychological well-being. Participants with Pravara Sāra consistently reported higher WHO-QOL scores compared to their Madhyama and Avara counterparts, with Ojas Sāra demonstrating the strongest association. Since Ojas is



considered the essence of all Dhātus and a determinant of mental stability, the present findings provide empirical support for classical Ayurvedic descriptions linking Ojas with psychological resilience and well-being. The gradation of well-being scores across Sāra categories also suggests that Dhātu excellence contributes to subjective quality of life in a dose-dependent manner.

Taken together, these findings bridge Ayurvedic conceptual frameworks with modern biomedical and psychological assessments. Varṇita Bala showed strong alignment with hematological and immunological markers, while Dhātu Sāra demonstrated significant relevance to mental health outcomes. These correlations indicate that Ayurvedic constructs, often regarded as qualitative, may indeed capture quantifiable aspects of human health and resilience.

At the same time, certain limitations should be acknowledged. The sample size, though adequate for initial associations, may limit generalizability across broader populations. The cross-sectional nature of the study prevents inference of causality, and future longitudinal studies could provide insights into whether improvements in Bala or Sāra through interventions translate into measurable gains in immunity and well-being. Additionally, cultural and lifestyle variables such as diet, physical activity, and stress levels were not deeply explored, though they may significantly influence both Ayurvedic and biomedical parameters.

Conclusion

The present study highlights the relevance of Ayurvedic constructs such as Varṇita Bala and Dhātu Sāra in understanding holistic health through both classical and modern perspectives. The findings revealed that the majority of participants exhibited moderate to high Bala and Sāra status, reflecting overall physiological stability in the study group. Importantly, higher Varṇita Bala was significantly associated with improved hematological and immunological markers, indicating that this traditional assessment aligns closely with measurable indicators of systemic robustness. Similarly, Dhātu Sāra, particularly Ojas Sāra, demonstrated a strong positive relationship with psychological well-being, underscoring Ayurveda's recognition of the mind-body connection. These results suggest that Ayurvedic parameters are not merely theoretical but hold practical applicability in predicting immunity, vitality, and quality of life. While

limited by sample size and cross-sectional design, the study provides valuable evidence bridging traditional diagnostic wisdom with contemporary biomedical understanding, supporting Ayurveda's continued relevance in integrative health care.

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