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A SURVEY STUDY TO EVALUATE THE RELATIONSHIP BETWEEN DAIHIKA PRAKRITI AND BALA (IMMUNE STATUS)

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Abstract:

Introduction: The term Bala can be understood in terms of both physical strength and body's immune status. Prakriti is a unique contribution of Ayurveda and each prakriti is associated with bala. **Methods:** A total of 400 subjects satisfying the inclusion criteria were administered the pre validated questionnaires for prakriti assessment and immune status assessment to answer. **Results:** The study revealed that there is statistically significant association between different Daihika Prakriti and bala (immune status) with Chi-Square Value of 74.2; P <0.001 and it is observed to have moderate association with Crammer's V = 0.385; P<0.001. **Discussion and Conclusion:** The classical texts have described the people with Kapha prakriti have uttama bala and Vata prakriti to have avara bala. This study reconfirms the fact that better immune response is found in kapha dominant prakriti.

Keywords: Prakriti, Bala, Immune status

Introduction:

Natural or innate immunity comprises the inborn immune mechanism designed to protect the host from injury or infection without previous exposure to an antigen.[1] Human body requires a properly functioning immune system to recognize and defend itself against exposure to external agents, including bacteria, viruses and substances (e.g., alcohol and drugs).An adequately functioning immune system is essential for the body to recognize and defend itself against exposure to external agents, including bacteria, viruses and substances (e.g., alcohol and drugs).[2] We are what we eat and how we live.[3] Our immune system is shaped by our surroundings (environmental factors). It is now well understood that our lifestyle (e.g., diet, drinking) has a significant impact on our immune system, either directly or indirectly.[4]

Likewise, Prakriti (Body Constitution) is a unique concept explained in Ayurveda which is fixed at time of conception and remain similar during the lifetime.[5] Apart from the dosha predominance of sperm and ovum at the time of fertilization, various other factors such as the food and activities of pregnant woman, the condition of uterus and even the season variations will also play a key role in determination of human constitution.[6] Features of different constitutions are innate and born along with the person (congenital).[7] Bala is considered as the physical and mental strength of the individual. Bala is one which prevents the roga, and is considered as the foundation of Health.[8] The word Deha bala can be understood in terms of body's physical strength as well as the immune status, particularly innate immunity. Prakriti is therefore, thought to have a strong connection with the immunity and has a central role in deciding strength. The present study aims to establish the relationship between deha prakriti and bala of an individual by assessing immune status through a prevalidated immune status questionnaire so that if proved, can be a cheaper technique available for day-to-day clinical affairs.

Materials and Methods:

A cross sectional survey study was conducted in a tertiary level AYUSH medical college and hospital, Hassan, Karnataka between the period of November 2021 and November 2022. Health seekers visiting inpatient and outpatient department of hospital aged between 20 to 50 years, irrespective of gender, occupation, health status and ready to give written consent were included in the study. Persons who were immune – compromised, mentally ill and bed ridden were excluded from the study.

Sample size calculation formula for infinite population was used where confidence interval was 95%, margin of error was taken as 5%, since the specification of exact proportion is difficult, population proportion is assumed to be 50% or 0.5, considering these values in the formula, the sample size was estimated as 384 which was approximated to 400. Convenient sampling method was chosen for this study.

The study was approved by the Institutional Ethics Committee (SDM/IEC/58/2021). Survey was carried out using pre validated questionnaires for both prakriti assessment [9] and immune status assessment [10]. Data was analyzed by using a statistical software. Descriptive analysis, Pearson Chi-Square test were applied to establish the relationship between two variables, Cramer's V was applied to establish the strength of association. "$P < 0.05$" was considered statistically significant. The effect size of Cramer's V less than or equal to 0.2 was considered as weak association, 0.2 to 0.6 was moderate and more than 0.6 was considered as strong association.[11]

Results:

Out of the 500 subjects surveyed, 171 (34.2%) were male, 328 (65.6%) were female and 01 (0.2%) were transgender. Among those surveyed, 161 (32.2%) subjects were within the age group of 20 to 25 years; 268 (53.6%) were from middle class family; 293 (58.6%) were having good sleep quality. When their Prakriti was analyzed, 262 (52.4%), 128(25.6%) and 110 (22.0%) subjects were with Kapha, Pitta and Vata dominant prakriti respectively.

Table 1**:** prakriti wise distribution of subjects

Prakriti		**Frequency**	**Percent**
Kapha Dominant 262 (52.4%)	Kapha Pitta	149	29.8
	Kapha Vata	113	22.6
Pitta Dominant 128 (25.6%)	Pitta kapha	71	14.2
	Pitta vata	57	11.4
Vata Dominant 110 (22.0%)	Vata Kapha	60	12.0
	Vata Pitta	50	10.0
Total		500	100.0

Table 2: Final score Categorization based on immune status

Final Score Categorization	**Frequency**	**Percent**
Yes < 6 reduced immune functioning	136	27.2
No ≥ 6 proper immune functioning	364	72.8
Total	500	100.0

A total of 364 (72.8%) were with normal immune functioning and 136 (27.2%) were with reduced immune functioning.

Table 3: final score and prakriti wise distribution

Among 364 subjects ,229 belongs to kapha dominant prakriti and is said to have proper immune functioning than other prakriti groups.

Final score		**Kapha pitta**	**Kapha vata**	**Pitta kapha**	**Pitta Vata**	**Vata kapha**	**Vata Pitta**	**Total**
Yes < 6; reduced immune functioning	Observed	16	17	20	24	33	26	136
	Expected	40.5	30.7	19.3	15.5	16.3	13.6	136.0
	%	10.7%	15.0%	28.2%	42.1%	55.0%	52.0%	27.2%
NO ≥ 6; proper immune functioning	Observed	133	96	51	33	27	24	364
	Expected	108.5	82.3	51.7	41.5	43.7	36.4	364.0
	%	89.3%	85.0%	71.8%	57.9%	45.0%	48.0%	72.8%
Total	Observed	149	113	71	57	60	50	500
	Expected	149.0	113.0	71.0	57.0	60.0	50.0	500.0
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4: test for association between immune status and prakriti

	Value	Df	P Value
Pearson Chi-Square	74.200	5	<0.001
Crammer's V	0.385		<0.001

Prakriti was found to be associated with immune status with a Chi-Square Value of 74.2 (P <0.001). A Crammer's V value of 0.385 (P<0.001) indicate the association to be Moderate.

Discussion and Conclusion:

The study established a relationship between Prakriti and Bala (Immune status). Among 500 subjects, majority of them were from kapha predominant prakriti (n=262) out of which the majority (n=229) exhibited proper immune functioning (final score ≥ 6). So, it can be said that majority of kapha dominant prakriti are associated with proper immune functioning (Uttama bala) as described in the classics. Among the total subjects surveyed (n=500), the subjects with vata dominant prakriti were the least (n=110) among whom a majority (n=59) exhibited reduced immune functioning (Avara bala) which supports the classical description. Pitta dominant prakriti (n=128) among whom majority were with proper immune function (n=84) and rest (n=44) had reduced immune functioning. Hence, we can say they exhibited madhyama bala. We can establish a relation that vata dominant prakriti exhibits alpa bala but because of a smaller number of subjects in that group, the impact of prakriti on bala cannot be extrapolated on a large population. The results obtained is in confirmation with the classical textual reference that that people with kapha, pitta and vata prakriti possess uttama, madhayama and avara bala respectively.

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