Research Article

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CROSS-SECTIONAL SURVEY TO ASSESS THE RELATIONSHIP OF SHAREERIKA AND MANASIK PRAKRUTI AND DEPRESSION LEVELS AMONG AYURVEDA UNDERGRADUATE STUDENTS

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ABSTRACT

Introduction: Stress is a physical, mental, or emotional factor that causes physical or psychological tension. Various studies on stress have shown that stress commonly inhibits academic performance, and students in professional colleges face higher levels of stressors than their peers. Therefore, early detection and assessment of stress, and timely intervention, are essential to prevent or minimise the effects of distress on students. Chronic or unmanaged stress alters the body's coping mechanisms and serves as a direct trigger for clinical depression. This research focuses on finding the relationship between depression and shareerika, manasika prakruti and the prevalence of depression among Ayurveda undergraduate students. Understanding the relationship between these variables could inform Prakruti-based, personalised health promotion strategies to address mental illness, stress reduction, and emotion management among student groups. Objectives: To explore the relationship between Prakruti and depression among undergraduate students. Methodology: 84 healthy volunteers meeting inclusion criteria were randomly selected. Informed consent was obtained. Demographics, Prakruti, and depression status were recorded. We recorded salivary pH and analysed the data using SPSS 27. Results and Conclusion: The majority of the study population exhibited symptoms of depression ranging from mild to moderately severe, and Sharirika Prakruti did not serve as a significant predictor for depression, suggesting that environmental academic stressors may exert a more dominant influence on student mental health.

Keywords: Prakruti, Depression, Saliva pH test, Satva saara

INTRODUCTION

Ayurveda, the ancient Indian Medical System, describes a unique concept, “Prakruti”, which divides the population into several subgroups based on their physical, physiological, psychological and behavioural characteristics. These personalised constitutional traits arise from the predominance of dosha during fertilisation, which maternal food, regimen, the quality of shukra (sperm), shonita (ovum), and uterine health influence.[1] It is the fundamental entity responsible for regulating all bodily functions, including mental functioning.

Ayurveda explains that Vata Prakruti individuals are jagarooka (alert), seeghra samarambha kshobha vikara (quickly irritated, attached, and detached), laghu Chapala chesta (fast and inconsistent movements), etc. Whereas kapha Prakruti individuals are Soumya (gentle), manda chesta (less movement), etc. Hence, in Vata and Pitta Prakruti, due to these characteristics, stress tolerance may be lower than in Kapha Prakruti.[2] A research conducted by American College Health Association found that stress, depression, anxiety and sleep difficulties are common inhibitors of academic performance of students. Main stressors in the academic sector include high academic ambitions, a vast syllabus, financial difficulties, peer pressure, problems in romantic relations, high parental expectations, concern about future jobs, homesickness, etc. Students admitted to Ayurveda colleges also face significant stress because they must learn extensive material from modern medicine as well as Ayurveda. Many subjects, including the Sanskrit language, are new to Ayurveda undergraduates after the current intermediate-level curriculum. Stress in medical sectors was also reported to decrease concentration, impede decision-making, and reduce students’ abilities to establish good relationships with patients ultimately affect the health of the community.[3-7]Depression, anxiety, stress are one of the reason for many health diseases such as hypertension, hypothyroidism, migraine, diabetes, heart related etc.[8-11] This research aims to describe the relationship between status of depression across different Prakruti groups, emphasizing implementation of Prakruti based personalized health promotion strategies to offer solutions for stress and depression reductions, emotion management among students’ groups

Objectives

- To assess the relationship between shareerika and manasika Prakruti and depression among Ayurveda undergraduates
- To estimate the prevalence of depression among Ayurveda medical undergraduates.
- To evaluate the efficiency of salivary pH in estimating depression.
- To assess the relationship between satva sara and depression among undergraduate students.

Hypothesis

A relationship exists between Shareerika and Manasika Prakruti and depression among Ayurveda undergraduate students.

MATERIALS AND METHODS

The present study was planned as a cross-sectional study, and the study was presented to the ethics committee, which granted approval with IEC No. SDMIAH/IEC/56/2025

Assessment of Shareerika Prakruti with CCRAS Standardised Prakruti Assessment Scale.
Shareerika Prakruti was assessed with the Prakruti Assessment Scale (Ayur Prakruti web portal) developed by CCRAS, under India's Ministry of AYUSH. This assessment scale is proven to be valid, reliable, and reproducible.[12]

Assessment of Manasika Prakruti with AYUSOFT, CDAC Pune, Maharashtra, India
This software was developed in collaboration with the Government of India's Centre for Development of Advanced Computing (C-DAC), Pune; the Department of Ayurveda, Savitribai Phule University of Pune; and Jnana Prabodhini, NGO, Pune, India. The database includes more than five lakh records from nine textbooks, including Bruhatrayee and Madava nidana. The software assesses Manasika Prakruti with built- in weightage configuration. Prakruti Vichaya module of Ayusoft contains manasika Prakruti.[13-18]

Assessment of depression with Patient Health Questionnaire (PHQ 9)
The Patient Health Questionnaire (PHQ) is a self-administered version of the PRIME-MD (Primary Care Evaluation of Mental Disorders) diagnostic instrument for common mental disorders. The tool is based upon the Diagnostic and Statistical Manual of Mental Disorders criteria. The questionnaire measures the severity of depression. The 9-item PHQ questionnaire's responses are framed in Likert-scale items ranging from 0 (not at all) to 3 (nearly every day).0-4 scores indicate no or minimal depression, 5-9 indicate mild,10-14 indicate moderate,15-19 indicate moderately severe, and 20-27 indicate severe depression. Studies agree that the scale is stable across demographic subgroups over time, which supports its use in the Indian context. This tool is short, easy and simple to administer. PHQ-9 has evidence for good internal consistency reliability (Cronbach's alpha 0.89) and validity. The questionnaire's sensitivity and specificity are 61% and 74%, respectively, in the adult population. The scale has good construct and criterion validity and acceptable psychometric properties in the rural Indian population.[19,20]

Estimation of salivary pH biomarker with pH strips
Participants were instructed to avoid eating, drinking, and smoking for at least 90 minutes before saliva collection, and to avoid oral movements like talking or swallowing for 5 minutes. Saliva samples were collected in the morning. Spitting methods were adopted to collect unstimulated saliva samples. pH of saliva was analysed with pH strips (pH 0-14, universal indicator, Merck, Germany). The strip was dipped in the collected saliva for 5sec, and the litmus colour change was noted and assessed by comparing it with the standard colour chart. The corresponding pH was recorded.[21]

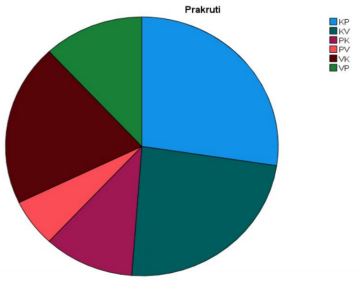
Assessment of Satva Saara with standardised and validated questionnaire
Satva Saara assessment questionnaire is a standardised, validated tool developed by Aswathy et al and it has three domains on which the scale was formulated. The intellectual domain includes questions numbered 1, 6, 7, 26, 27, 28, 29, 30, and 31. The attitude domain is expressed by questions 2, 3, 4, 5, 8, 9, 10, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 32, 33, 34, 35, and 36. Activity domain includes 11, 12,13,14,15. Among these questions, positively framed questions are 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36. Remaining questions are negatively framed. It was rated as a 5-point Likert questionnaire.[22]

This study was conducted in the Department of Kriya Shareera, SDM Institute of Ayurveda and Hospital, Bangalore, from November 2025 to June 2026. Ayurveda undergraduate students aged 18-20 years were selected from the campus. Participants who were on sedatives, hypnotics and tranquillizers, or any other medication for any acute or chronic physical or mental illness or having hormonal or neurological disorders, were excluded from the study.

Study design
We finally recruited 84 healthy volunteers who met the inclusion criteria. Written informed consent was taken. Demographic characteristics were collected. Shareerika Prakruti was assessed using the CCRAS Ayur Prakruti Web Portal, Manasika Prakruti was assessed using the Ayusoft Prakruti Vichaya module, and depression was estimated using the PHQ-9. Sara was assessed using a standardised, validated questionnaire, and salivary pH was measured with pH strips. We analysed the relationships among these parameters using appropriate statistical tests in SPSS version 27. Data were analysed using the Fisher-Freeman-Halton Exact Test, Spearman's rank-order correlation, Receiver Operating Characteristic (ROC) curve, and correlation coefficient.

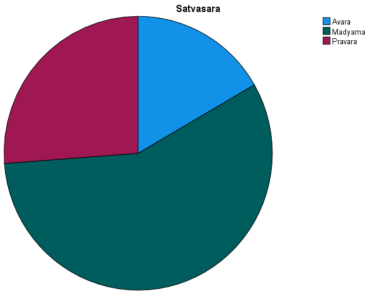
OBSERVATION AND RESULTS

Among the 84 study participants, 65 (77.4%) were female respondents. Most participants were in the 20-year age group (78.5%). Among participants, 23 belonged to Kapha-Pitta, 20 to Kapha-Vata, 9 to Pitta-Kapha, 5 to Pitta-Vata, 17 to Vata-Kapha, and 10 to Vata-Pitta. Most participants belonged to the Kapha-Pitta Prakruti, comprising 27.4% of the total sample. Kapha-Vata was the next most common, at 23.8%. Pitta- Kapha accounted for 10.7%, followed by Pitta-Vata at 6%. Vata-Kapha made up 20.2%, while Vata-Pitta accounted for 20.2% of the sample.



Graph 1: Distribution of Prakruti

Sara analysis of study participants reveals that 4(16.7%) candidates have Avara Satva, 48(57.15%) candidates have Madhyama Satva, and 22(26.2%) candidates have Pravara Satva.



Graph 2: Distribution of Satva Sara

Although all participants (N=84) were classified as predominantly Sattvika, individual guna intensity varied significantly. The mean score for Sattva is 73.14, SD 6.71, with individual scores ranging from a minimum of 57 to a maximum of 88. This suggests that while the population is uniformly Sattva-dominant, mental resilience varies. The secondary Rajas guna shows a mean of 19.74 with SD 5.05, while the Tamas guna remains the lowest at 8.32, SD 9.57.

Table 1: Distribution of Manasika Guna across Manasika Prakruti

Guna	Mean (%)	Std. Deviation	Minimum (%)	Maximum (%)
Sattva	73.14	6.71	57	88
Rajas	19.74	5.05	8	30
Tamas	8.32	9.57	1	74

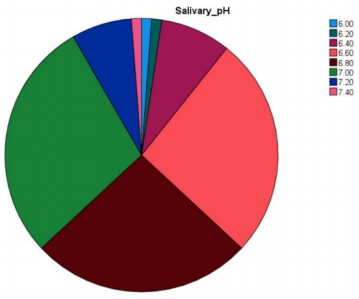
Table 2: Prevalence of Depression Among Ayurveda Undergraduates

Severity Level	Frequency (n)	Percentage (%)	Cumulative %
Minimal depression	28	33.3	33.3
Mild depression	32	38.1	71.4
Moderate depression	15	17.9	89.3
Moderately severe	9	10.7	100

Results indicated that 33.3% (n=28) of students exhibited minimal depression. The overall prevalence of depression (ranging from mild to moderately severe) was found to be 66.7% (n=56). Specifically, 38.1% (n=32) presented with mild depression, 17.9% (n=15) with moderate depression, and 10.7% (n=9) with moderately severe depression.

Distribution of Salivary pH

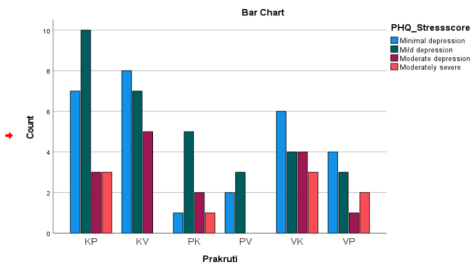
Most study participants had a salivary pH of 6.60.



Graph 3: Distribution of Salivary pH Among Study Participants

Table 3: Relationship Between Shareerika Prakruti and Depression

		PHQ_				Total
		Minimal depression	Mild depression	Moderate depression	Moderately severe	
Prakruti	KP	7	10	3	3	23
	KV	8	7	5	0	20
	PK	1	5	2	1	9
	PV	2	3	0	0	5
	VK	6	4	4	3	17
	VP	4	3	1	2	10
Total		28	32	15	9	84



Graph 4: Relationship Between Shareerika Prakruti and Depression

A cross-tabulation analysis was conducted to evaluate the relationship between Shareerika Prakruti and depression severity levels among the studied population. Because the contingency table had small, expected counts, we used the Fisher-Freeman-Halton Exact Test to ensure analytical accuracy. The analysis indicated no statistically significant relationship between the variables (Fisher-Freeman-Halton Exact Statistic = 11.64, p = .696). The Likelihood Ratio test confirmed this result and also failed to reach statistical significance. However, the data do not support a significant association between constitutional type and depression status in this study population.

Table 4: Relationship Between Manasika Prakruti and Depression

Variable Pair	Spearman's Rho (rs)	p-value (2-tailed)
Sattva % vs. Depression	-0.041	0.713
Rajas % vs. Depression	-0.028	0.801
Tamas % vs. Depression	0.061	0.579

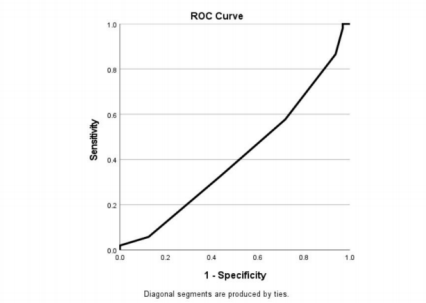
The analysis revealed no statistically significant correlation between depression scores and Sattva (r = -.041, p = .713), Rajas (r = -.028, p = .801), or Tamas (r = .061, p = .579). While the directions of the correlations for Sattva (negative) and Tamas (positive) align with Ayurveda concepts of mental resilience, the values indicate that, in this population of Ayurveda undergraduates, Manasika Prakruti percentages were not significant predictors of depression severity.

Efficiency of Salivary pH as a Diagnostic Marker for Assessment of Depression Status

The Area Under the Curve (AUC) for Salivary pH was found to be 0.410 (95% CI: .285–.535, p = .167). These results indicate that salivary pH did not demonstrate sufficient diagnostic efficiency or statistical significance in discriminating between students with and without depression in the current sample.

Table 5: Efficiency of Salivary pH

Parameter	Value
Area Under the Curve (AUC)	0.41
Standard Error	0.064
p-value (Significance)	0.167
95% Confidence Interval	[0.285, 0.535]



Graph 5: ROC curve to Estimate the Efficiency of Salivary pH in Assessment of Marker for Depression

Relationship Between Satva Sara and Depression Among Undergraduate Students

A Spearman's rank-order correlation was performed to determine the relationship between Satva Sara and depression scores among Ayurveda undergraduates. The two variables showed a very weak, negative correlation that was not statistically significant (r = -.027, p = .805). The data suggest that in this specific population, Satva Sara was not a significant predictor of depression levels.

DISCUSSION

The present study observed a significant prevalence of depression among Ayurveda undergraduates, with 66.7% of the sample exhibiting some degree of depressive symptoms. While 33.3% were in the minimal range, most fell into the mild (38.1%) to moderately severe (10.7%) categories. This high prevalence is consistent with contemporary research on medical students in India, who face rigorous academic schedules, clinical responsibilities, and the dual burden of mastering traditional and modern medical systems. From an Ayurvedic perspective, this indicates Manovaha Srotodushti, likely triggered by Pragnyaparadha (intellectual errors in lifestyle) and stressors of the current era.[23,24]

The test results suggested that there are no statistically significant association between Sharirika Prakruti and depression. While classical texts suggest that Vata-dominant individuals are more prone to anxiety-related disorders, our data showed that depression levels were distributed fairly evenly across all constitutional types (KP, KV, PK, etc.).This lack of significance may be attributed to external stressors (Agantuka Bhava) in medical colleges, which may be so potent that they override Prakruti's effect. The relatively small sample size may also have limited the ability to detect subtle differences between the variables.

All participants in this study were classified as predominantly Sattvika by the Ayusoft assessment. The analysis showed that Sattva percentages ranged from 57% to 88%. The correlation between Sattva intensity and depression was negative (r = -.041) but non-significant (p = .713). Similarly, Tamas showed a slight positive correlation with depression (rs = .061). These directions support the Ayurvedic view that Sattva is protective and Tamas is a factor in susceptibility. The lack of significant correlation suggests that the "Excellence of Mind" may not directly form a barrier against modern clinical depression, which is a complex interplay of neurochemistry and environmental stress. [24,25]

The evaluation of salivary pH as a diagnostic marker for depression yielded an AUC of 0.410 (p = .167). In diagnostic statistics, an AUC below 0.50 indicates that the marker is not efficient at discriminating between "depressed" and "normal" states. Physiologically, salivary pH is influenced by diet, hydration, and circadian rhythms. While some studies suggest that chronic stress leads to oral acidity, our findings suggest that a single-point assessment of salivary pH is insufficient for screening depression in an undergraduate population.[27]

CONCUSION

The majority of the study population exhibited symptoms of depression ranging from mild to moderately severe, highlighting a significant mental health burden among Ayurveda medical undergraduates. Sharirika Prakruti did not serve as a significant predictor for depression, suggesting that environmental academic stressors may exert a more dominant influence on student mental health. With an AUC of 0.410, salivary pH showed poor diagnostic efficiency, indicating it is not a reliable physiological marker for estimating depression in this population compared with standardised psychological scales.

LIMITATION

Larger, more adequate sample sizes across all Prakruti types are needed to derive meaningful, statistically significant results and understand the variables. Incorporating objective biomarkers like salivary cortisol to evaluate depression status in future studies is essential.

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