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A COMPARATIVE OBSERVATIONAL STUDY OF ACNE SEVERITY USING THE GLOBAL ACNE GRADING SYSTEM AMONG *PITTA-PRADHANA* AND *KAPHA-PRADHANA PRAKRTI* INDIVIDUALS

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ABSTRACT

Acne vulgaris is a common inflammatory disorder of the pilosebaceous unit with variable severity. Ayurveda considers *Prakrti* an important determinant of individual variation. This study compared acne severity between *Pitta-Pradhana* and *Kapha-Pradhana Prakrti* individuals using the Global Acne Grading System (GAGS). **Materials and Methods:** A comparative observational study was conducted among 80 participants aged 18–30 years. Participants were classified into four *Dvidoshaja Prakrti* subgroups: *Pitta–Vata, Pitta–Kapha, Kapha–Vata,* and *Kapha–Pitta*, with 20 participants each. *Pitta-Pradhana* and *Kapha-Pradhana* groups comprised 40 participants each. Acne severity was assessed using GAGS. Mean scores were compared using an independent-samples *t*-test, severity categories using the Chi-square test, and subgroup means using one-way ANOVA with Tukey's post-hoc test. **Results:** Mean GAGS score was significantly higher in *Pitta-Pradhana* (27.60±8.69) than *Kapha-Pradhana* (23.50±8.77) individuals (p=0.039; Cohen's d=0.47). Category-wise association was not significant (χ^2=5.987, p=0.112), but a significant linear trend was observed (p=0.030). Subgroup means differed significantly [F (3,76)=8.370, p<0.001], with the highest score in *Pitta–Kapha* and lowest in *Kapha–Vata*. **Conclusion:** *Pitta-Pradhana* individuals had higher mean acne severity than *Kapha-Pradhana* individuals. Larger studies are warranted.

INTRODUCTION

Acne vulgaris is one of the most common inflammatory disorders of the pilosebaceous unit, predominantly affecting adolescents and young adults. It is characterized by comedones, papules, pustules and nodules, with considerable variation in clinical severity.[1] Recent epidemiological evidence indicates that the prevalence of acne has increased globally among adolescents and young adults, with the highest burden observed during adolescence.[2] Acne may also have substantial psychosocial consequences, affecting self-esteem, social functioning and quality of life.[3]

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The multifactorial nature of acne involves follicular hyperkeratinisation, altered sebum production, microbial factors and inflammation, resulting in variable clinical expression.[4,5] Therefore, standardized assessment of acne severity is important in both clinical evaluation and research. The Global Acne Grading System (GAGS) provides a quantitative method for assessing acne severity according to the anatomical distribution and most severe lesion present.[6]

In Ayurveda, acne-like facial eruptions occurring predominantly in young individuals are described under *Mukhadushika/Yuvanapiḍika*. *Sushruta Saṃhita* describes *Mukhadushika* as characteristic eruptions occurring on the face of young individuals, providing a classical basis for understanding acne as a distinct manifestation of youth.[7] The Ayurvedic approach further emphasizes individual variation through the concept of *Prakrti*, which represents the inherent constitutional

predominance of the *Doshas* and is considered an important determinant of differences in physiological characteristics and disease manifestation.[8]

Although the *Doshas* and their *Gunas* are present throughout life, their relative predominance varies with age. *Pitta* is described as predominant during adulthood, whereas *Kapha* predominates during childhood. Thus, the importance of *Prakrti* in young adulthood does not arise from the appearance of a new *Dosha* or *Guna*, but from the interaction between an individual's lifelong constitutional predominance and the age-related *Doshic* predominance. This provides a basis for considering whether individuals having *Pitta* or *Kapha* predominance by *Prakrti* may show differences in the manifestation and severity of acne during young adulthood.

The relevance of *Prakrti* becomes particularly important when considering *Pitta-Pradhana* and *Kapha-Pradhana* individuals. Classical descriptions of *Pitta-Pradhana Prakrti* include cutaneous manifestations such as *Piplū, Vyanga* and *Tilapiḍaka*, while *Pitta* is characterized by *Uṣna* and *Tīkṣna* attributes, among others.[8] In contrast, *Kapha* is characterized by *Snigdha, Shīta, Guru, Manda, Shlakṣna, Mrtsna* and *Sthira* qualities.[9] Among these, the *Snigdha* and *Mrtsna/Picchila* characteristics may provide a constitutional basis for an unctuous and viscous tendency of the skin, which may be relevant when considering acne manifestation. This difference in the constitutional attributes of *Pitta* and *Kapha* provides an Ayurvedic rationale for examining whether acne severity varies between these *Prakrti* groups.

Although previous studies have examined the association of *Prakrti* with acne, there is scope for further comparative evaluation of acne severity between *Pitta-Pradhana* and *Kapha-Pradhana* individuals using an objective and standardized grading system. Such an assessment may help integrate the Ayurvedic concept of individual constitution with a reproducible clinical measure of acne severity. Therefore, the present study was undertaken to assess and compare acne severity among *Pitta-Pradhana* and *Kapha-Pradhana Prakrti* individuals using the Global Acne Grading System (GAGS).

MATERIALS AND METHODS

Study Design and Setting

A comparative observational study was conducted to assess and compare acne severity among *Pitta-Pradhana* and *Kapha-Pradhana Prakrti* individuals using the Global Acne Grading System (GAGS).

Study Participants and Sample Size

A total of 80 participants aged 18–30 years were included in the study. Participants were assessed for *Prakrti* and classified into four *Prakrti* subtypes: *Pitta–Vata* (PV), *Pitta–Kapha* (PK), *Kapha–Vata* (KV), and *Kapha–Pitta* (KP), with 20 participants in each subtype.

For the primary analysis, the four subtypes were pooled according to the predominant *Dosha*. Thus, PV and PK were considered the *Pitta-Pradhana* group (n = 40), whereas KV and KP were considered the *Kapha-Pradhana* group (n = 40).

Inclusion Criteria

Participants fulfilling the following criteria were included:

- Individuals aged 18–30 years, irrespective of gender and caste.
- Individuals presenting with acne vulgaris clinically suitable for assessment using the GAGS.
- Individuals identified as having *Pitta-Pradhana* or *Kapha-Pradhana Prakrti* according to the specified *Prakrti* assessment method.
- Participants willing to provide written informed consent.

Exclusion Criteria

- Acne associated with a known underlying systemic or endocrine disorder.
- Other significant dermatological conditions affecting the assessment of acne severity.
- Severe systemic illness or any condition likely to interfere with the study assessment.
- A history of treatment or medication likely to substantially alter acne severity during the assessment period.
- Inability or unwillingness to provide informed consent or complete the required assessment.

Prakrti Assessment

Prakrti was assessed using the standardized *Prakrti* assessment questionnaire developed by Dr. Kishore Patwardhan and Dr. Rashmi Sharma. Based on the assessment of constitutional characteristics, participants were classified according to their predominant *Prakrti* as *Pitta–Vata*, *Pitta–Kapha*, *Kapha–Vata*, or *Kapha–Pitta*. For the primary analysis, participants with *Pitta* predominance (*Pitta–Vata* and *Pitta–Kapha*) were grouped as *Pitta-Pradhana*, while those with *Kapha* predominance (*Kapha–Vata* and *Kapha–Pitta*) were grouped as *Kapha-Pradhana*.

Assessment of Acne Severity

Acne severity was assessed using the Global Acne Grading System (GAGS) developed by Doshi et al. The face and upper trunk were divided into six

anatomical regions: forehead, right cheek, left cheek, nose, chin, and chest/upper back. Each region was assigned a regional factor of 2, 2, 2, 1, 1, and 3, respectively.

The most severe lesion present in each anatomical region was graded as follows: comedone=1, papule=2, pustule=3, and nodule=4; a score of 0 was assigned when no lesion was present. The regional score was calculated by multiplying the lesion grade by the corresponding regional factor. The total GAGS score was obtained by summing the scores of all six regions, with a maximum possible score of 44. Based on the total score, acne severity was categorized as mild (1–18), moderate (19–30), severe (31–38), and very severe (39–44).

Data Collection

After obtaining written informed consent, relevant demographic information, including age, sex, and dietary pattern, was recorded. *Prakrti* assessment was subsequently performed, followed by clinical assessment of acne severity using GAGS. The observations were systematically recorded in the study case record form.

Statistical Analysis

Data were entered and analysed using IBM SPSS Statistics version 23. Categorical variables were expressed as frequency and percentage, while continuous variables were summarized using mean ± standard deviation or median with interquartile range, as appropriate.

The distribution of GAGS total scores was assessed using the Shapiro–Wilk test along with graphical assessment using Q-Q plots. For the primary comparison of GAGS total scores between *Pitta-Pradhana* and *Kapha-Pradhana* groups, an independent -samples t-test was used for normally distributed data, whereas the Mann–Whitney U test was applied for non-normally distributed data.

The association between *Prakrti* predominance and GAGS severity categories was assessed using the Chi-square test or Fisher's exact test, as appropriate. Comparison of GAGS total scores across the four subgroups (*Pitta–Vata*, *Pitta–Kapha*, *Kapha–Vata*, and *Kapha–Pitta*) was performed using one-way ANOVA or the Kruskal–Wallis test, as appropriate, and was considered a secondary exploratory analysis. Effect sizes were reported where applicable. A two-tailed p-value <0.05 was considered statistically significant.

Ethical Considerations

The study was conducted after obtaining approval from the Institutional Ethics Committee. Written informed *Dvi Doshaja Prakrti* consent was obtained from all participants before their inclusion in the study.

RESULTS

Descriptive Characteristics of the Study Participants

A total of 80 participants aged between 18 and 30 years were included in the study. The mean age of the participants was 22.70±3.14 years, with an age range of 18–30 years. The overall mean GAGS score was 25.55±8.92, with scores ranging from 8 to 40. The distribution of participants according to sex showed a higher representation of females, with 51 (63.7%) females and 29 (36.3%) males. Regarding dietary pattern, 37 (46.3%) participants were vegetarian and 43 (53.8%) followed a non-vegetarian/mixed diet.

Based on *Prakrti* predominance, 40 (50.0%) participants were classified as *Pitta-Pradhana* and 40 (50.0%) as *Kapha-Pradhana*. Within the *DviDoshaja* subtypes, *Pitta–Vata*, *Pitta–Kapha*, *Kapha–Vata* and *Kapha–Pitta* each comprised 20 participants (25.0%). According to GAGS severity classification, 19 (23.8%) participants had mild acne, 35 (43.8%) had moderate acne, 20 (25.0%) had severe acne and 6 (7.5%) had very severe acne. Thus, moderate acne was the most frequently observed severity category in the study population.

Table 1: GAGS severity distribution

GAGS severity	n (%)
Mild	19 (23.8)
Moderate	35 (43.8)
Severe	20 (25.0)
Very severe	6 (7.5)
Total	**80 (100)**

Comparison of GAGS Scores between *Pitta-Pradhana* and *Kapha-Pradhana* Groups

Before the primary comparison, the distribution of GAGS scores was assessed separately in the *Pitta-Pradhana* and *Kapha-Pradhana* groups using the Shapiro–Wilk test and Q-Q plots. The GAGS scores did not show a statistically significant deviation from normality in either group (*Pitta-Pradhana*: p=0.077; *Kapha-Pradhana*: p=0.108). Levene's test showed no significant difference in variances between the two groups (p=0.804). Therefore, an independent-samples t-test was used to compare the mean GAGS scores between the two groups. The mean GAGS score was higher in the *Pitta-Pradhana* group (27.60±8.69) compared with the *Kapha-Pradhana* group (23.50±8.77). The difference in mean GAGS scores was statistically significant (t(78)=2.100, p=0.039; 95% CI: 0.214–7.986). The effect size, expressed as Cohen's d, was 0.47, indicating a moderate effect.

As a secondary exploratory analysis, the mean GAGS scores were also examined across the four *Dvi Doshaja Prakrti* subgroups. The mean GAGS scores were 24.25±8.94 in *Pitta–Vata*, 30.95±7.17 in *Pitta–Kapha*, 19.10±7.42 in *Kapha–Vata* and 27.90±7.88 in *Kapha-Pitta* subgroups. The highest mean GAGS score was observed in the *Pitta–Kapha* subgroup, whereas the lowest was observed in the *Kapha–Vata* subgroup.

Table 2. Comparison of GAGS Scores between *Pitta-Pradhana prakruti* and *Kapha-Pradhana prakruti* Groups

***Prakrti* group**	**n**	**Mean GAGS score ± SD**
Pitta-Pradhana prakruti	40	27.60 ± 8.69
Kapha-Pradhana prakruti	40	23.50 ± 8.77
Mean difference	-	4.10
Independent-samples *t*-test	-	t (78) = 2.100, p = 0.039*
95% CI of mean difference	-	0.214–7.986
Cohen's *d*	-	0.47

*Independent-samples *t*-test with equal variances assumed. $p < 0.05$ was considered statistically significant.

Secondary Outcome 1: Distribution of GAGS Severity Categories by *Prakrti* Group

The distribution of GAGS severity categories was compared between *Pitta-Pradhana* and *Kapha-Pradhana* groups using a contingency table analysis. In the *Pitta-Pradhana* group (*n*=40), 5 (12.5%) participants had mild acne, 19 (47.5%) had moderate acne, 12 (30.0%) had severe acne and 4 (10.0%) had very severe acne. In the *Kapha-Pradhana* group (*n*=40), 14 (35.0%) had mild acne, 16 (40.0%) had moderate acne, 8 (20.0%) had severe acne and 2 (5.0%) had very severe acne.

The Pearson Chi-square test did not demonstrate a statistically significant overall association between *Prakrti* predominance and GAGS severity categories (χ^2=5.987, *df*=3, *p*=0.112). However, because the GAGS categories are ordinal, a Linear-by-Linear Association test was additionally performed to assess the presence of a linear trend across increasing severity categories. This demonstrated a statistically significant linear trend (χ^2=4.687, *df*=1, *p*=0.030), with the distribution tending towards higher severity categories in the *Pitta-Pradhana* group.

Table 3. Distribution of GAGS Severity Categories by *Prakrti* Group (*N* = 80)

***Prakrti* group**	**Mild, n (%)**	**Moderate, n (%)**	**Severe, n (%)**	**Very severe, n (%)**	**Total, n**
Pitta-Pradhana	5 (12.5)	19 (47.5)	12 (30.0)	4 (10.0)	40
Kapha-Pradhana	14 (35.0)	16 (40.0)	8 (20.0)	2 (5.0)	40
Total	19 (23.8)	35 (43.8)	20 (25.0)	6 (7.5)	80

Note: Pearson Chi-square=5.987, *df*=3, *p*=0.112; Linear-by-Linear Association=4.687, *df* =1, *p*=0.030.

Secondary Outcome 2: Comparison of GAGS Scores among *DviDoshaja Prakrti* Subgroups

A one-way analysis of variance (ANOVA) was performed to compare mean GAGS scores across the four *Dvi Doshaja Prakrti* subgroups. The assumption of homogeneity of variance was satisfied, as indicated by Levene's test (*p*=0.906). The mean GAGS score differed significantly among the four *Prakrti* subgroups [F (3,76)=8.370, *p*<0.001].

The mean GAGS score was highest in the *Pitta–Kapha* subgroup (30.95±7.17), followed by *Kapha–Pitta* (27.90±7.88), *Pitta–Vata* (24.25±8.94) and *Kapha–Vata* (19.10±7.42). Tukey's post-hoc analysis demonstrated significantly higher GAGS scores in the *Pitta–Kapha* subgroup compared with *Pitta–Vata* (*p*=0.043) and *Kapha–Vata* (*p*<0.001). The *Kapha–Pitta* subgroup also had significantly higher GAGS scores than the *Kapha–Vata* subgroup (*p*=0.004). No statistically significant differences were observed for the remaining pairwise comparisons.

Table 4: Comparison of GAGS Scores among *Dvi Doshaja Prakrti* Subgroups

***Prakrti* subgroup**	**n**	**Mean GAGS score ± SD**
Pitta–Vata	20	24.25 ± 8.94
Pitta–Kapha	20	30.95 ± 7.17
Kapha–Vata	20	19.10 ± 7.42
Kapha–Pitta	20	27.90 ± 7.88

Note: One-way ANOVA: $F(3,76) = 8.370, p < 0.001, \eta^2 = 0.248$. Post-hoc analysis: Tukey's HSD. Statistically significant pairwise differences: PK vs. KV ($p < 0.001$), KP vs. KV ($p = 0.004$), and PK vs. PV ($p = 0.043$).

DISCUSSION

The present study assessed acne severity using the Global Acne Grading System (GAGS) among *Pitta-Pradhana* and *Kapha-Pradhana Prakrti* individuals. The mean GAGS score was significantly higher in the *Pitta-Pradhana* group than in the *Kapha-Pradhana* group, indicating greater acne severity among *Pitta-Pradhana* individuals in the present study.

From an Ayurvedic perspective, *Pitta* is characterized by *Sasneha, Tikshna, Ushna, Laghu, Visra, Sara* and *Drava Gunas*, whereas *Kapha* possesses *Snigdha, Shita, Guru, Manda, Shlakshna, Mrtsna* and *Sthira* qualities. The predominance of *Ushna* and *Tikshna* qualities of *Pitta* may provide a conceptual basis for the greater acne severity observed in *Pitta-Pradhana* individuals. In contrast, the *Shita, Manda* and *Sthira* qualities of *Kapha* differ from these properties. These observations provide an Ayurvedic rationale for the variation in GAGS scores between the two groups, although the present study establishes an association and does not demonstrate causation.

In the secondary analysis, the mean GAGS score differed significantly among the four *Dvi Doshaja Prakrti* subgroups. The highest score was observed in *Pitta–Kapha*, followed by *Kapha–Pitta*, *Pitta–Vata* and *Kapha–Vata*. Tukey's analysis showed significant differences particularly between *Pitta–Kapha* and *Pitta –Vata*, *Pitta–Kapha* and *Kapha–Vata*, and *Kapha–Pitta* and *Kapha–Vata*. These findings suggest variation in acne severity according to *Dvi Doshaja* constitutional patterns and warrant further investigation in larger samples.

The categorical analysis did not show a statistically significant overall association between *Pitta/Kapha* predominance and GAGS severity categories. However, the significant linear trend indicated a tendency towards higher severity categories in the *Pitta-Pradhana* group. Thus, the continuous GAGS analysis provides stronger evidence of the difference in acne severity between the primary *Prakrti* groups.

The observed difference in acne severity may have clinical relevance in the Ayurvedic approach to individualized management. Assessment of *Prakrti* may help identify constitutional variations associated with differences in the clinical expression of acne and may therefore be considered along with the presenting clinical features when planning dietary advice, lifestyle modification and therapeutic measures. This may provide a basis for a more individualized approach rather than applying a uniform management strategy to all individuals with acne. However, the present study did not evaluate treatment response or the effectiveness of *Prakrti*-based interventions; therefore, the therapeutic utility of incorporating *Prakrti* assessment into acne management needs to be evaluated through prospective interventional studies.

Overall, the findings suggest that *Pitta-Pradhana Prakrti* may be associated with greater acne severity compared with *Kapha-Pradhana Prakrti*, with further variation observed among the *Dvi Doshaja* subgroups.

CONCLUSION

The present study demonstrated that *Pitta-Pradhana* individuals had significantly higher mean GAGS scores than *Kapha-Pradhana* individuals, indicating greater acne severity in the *Pitta-Pradhana* group. The predominance of *Pitta* with its *Uṣna* and *Tīkṣna Gunas* provides a possible Ayurvedic rationale for this observation. Among the four *Dvi Doshaja Prakrti* subgroups, *Pitta–Kapha* showed the highest mean GAGS score, while *Kapha–Vata* showed the lowest, with significant differences observed between selected subgroups. Although the overall association between *Prakrti* predominance and GAGS severity categories was not statistically significant, an ordinal trend towards higher severity was observed in the *Pitta-Pradhana* group. Overall, the findings suggest that *Prakrti* predominance may contribute to variation in acne severity. Further studies with larger samples are required to confirm these observations.

Limitations

- The study included a relatively small sample size of 80 participants, with 20 participants in each *Dvi Doshaja Prakrti* subgroup, which may limit the generalizability of the findings.
- Potential influencing factors such as hormonal status, lifestyle, stress, skincare practices and other environmental factors were not comprehensively assessed.
- The study was conducted in a specific study population and age group of 18–30 years; therefore, the findings may not be directly generalizable to other age groups or populations.

REFERENCES

1. Heng AHS, Chew FT. Systematic review of the epidemiology of acne vulgaris. Sci Rep. 2020; 10(1): 5754. doi:10.1038/s41598-020-62715-3.
2. Layton AM, Bettoli V, Delore V, Puentes E, Tan JKL. The burden of acne vulgaris on health-related quality of life and psychosocial well-being domains: a systematic review. Am J Clin Dermatol.

2026; 27(1): 17-47. doi:10.1007/s40257-025-00983-3.

3. Almutawa YM, Bhattarai E, AlGhareeb M, Zhao J. Evaluation of psychiatric comorbidities and quality of life as well as brain-derived neurotrophic factor concentrations among patients suffering from acne vulgaris: a systematic review and meta-analysis. Cureus. 2023; 15(2): e33357. doi:10.7759/cureus.33357.
4. Knor T. The pathogenesis of acne. Acta Dermatovenerol Croat. 2005; 13(1): 44-49.
5. Del Rosso JQ, et al. The primary role of sebum in the pathophysiology of acne vulgaris and its therapeutic relevance in acne management. J Dermatolog Treat. 2024; 35(1): 2296855. doi:10.1080/09546634.2023.2296855.
6. Doshi A, Zaheer A, Stiller MJ. A comparison of current acne grading systems and proposal of a novel system. Int J Dermatol. 1997; 36(6): 416-418. doi:10.1046/j.1365-4362.1997.00099. x.
7. Sushruta. Sushruta Saṃhita, Nidana Sthana 13/39. In: Yadavji Trikamji Acharya, editor. Sushruta Saṃhita with Nibandha Sangraha Commentary of Dalhanacarya. Varanasi: Chaukhambha Orientalia.
8. Agnivesha. Caraka Saṃhita, Vimana Sthana 8/96-97. Revised by Caraka and Drḍhabala; with Ayurveda Dīpika commentary of Cakrapanidatta. Varanasi: Chaukhambha Surbharati Prakashan.
9. Vagbhata. Aṣtanga Hrdaya, Sūtra Sthana 1/11-12. In: Paradakara HS, editor. Aṣtanga Hrdaya of Vagbhata with Sarvangasundara and Ayurveda rasayana Commentaries. Varanasi: Chaukhambha Surbharati Prakashan.

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