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"A CRITICAL STUDY OF TRIVIDHA HETU WITH SPECIAL REFERENCE TO RASANENDRIYA ASATMENDRIYARTHA SAMYOGA IN PRESENT-DAY LIFESTYLE DISORDERS: A CROSS-SECTIONAL OBSERVATIONAL STUDY"

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ABSTRACT

Lifestyle disorders — Sthoulya (obesity), Prameha/Madhumeha (type 2 diabetes mellitus) and Raktachapa Vriddhi (hypertension) — constitute the leading non-communicable disease burden of contemporary India. Ayurveda attributes such Santarpanajanya Vyadhis to the Trividha Hetu: Asatmendriyarthasamyoga, Pragyaparadha and Kaal Parinam, of which improper engagement of the sense of taste (Rasanendriya Asatmendriyarthasamyoga) is the most proximate dietary cause. No validated quantitative instrument for these classical constructs has previously existed. **Objectives:** To evaluate the pattern and severity of Rasanendriya Asatmendriyarthasamyoga and its three sub-types (Atiyoga, Ayoga, Mithyayoga) in lifestyle-disorder patients; to determine the dominant sub-type; to correlate the Trividha Hetu constructs with anthropometric and biochemical parameters; and to develop and validate a measurement tool. **Materials and Methods:** A cross-sectional observational study enrolled 100 adults (18–60 years) with one or more lifestyle disorders attending a Kayachikitsa OPD. A purpose-built 36-item questionnaire assessed Ahara Vidhi Visheshayatna adherence (Section C), Rasanendriya Asatmendriyarthasamyoga (D), Pragyaparadha (E) and Kaal Parinam (F). Anthropometry, blood pressure and Prakriti were recorded. Data were analysed using Spearman correlation, chi-square/Fisher tests, the Friedman test, multiple linear regression and Cronbach's alpha ($p < 0.05$). **Results:** Mean age was 44.7 ± 9.0 years; 44% were Kapha Pradhana. The mean Rasanendriya (D) score was 35.8 ± 6.3 (70.2% of maximum), with 87% classified Severe/Very Severe and none Mild. Mithyayoga was the dominant sub-type (17.49) over Atiyoga (13.66) and Ayoga (4.65) (Friedman $\chi^2 = 185.7$, $p < 0.001$). The D score correlated with BMI ($\rho = 0.482$) and HbA1c ($\rho = 0.438$); Atiyoga–BMI $\rho = 0.615$ (all $p < 0.001$). Inter-scale correlations ranged $\rho = 0.656$ – 0.838 . The D score was an independent predictor of BMI ($\beta = 0.258$, $p = 0.006$; model $R^2 = 0.346$). Kapha Pradhana individuals showed the poorest Ahara Vidhi adherence ($\chi^2 = 17.17$, $p = 0.028$). The full instrument showed excellent reliability ($\alpha = 0.932$). **Conclusion:** The Trividha Hetu operates as an empirically valid, integrated model of disease causation.

Rasanendriya Asatmendriyārtha Samyoga — predominantly Mithyayoga — is a fundamental and measurable driver of lifestyle disorders. The findings recast dietary management from a quantitative problem (eating too much) to a qualitative-behavioural one (eating wrongly), supporting Nidana Parivarjana, Prakriti-specific dietary guidance and Ritucharya as primary strategies.

Keywords: Ayurveda; Trividha Hetu; Asatmendriyārtha Samyoga; Rasanendriya; Mithyayoga; Lifestyle disorders; Prakriti; Nidana Parivarjana.

1. Introduction

Non-communicable diseases (NCDs) now account for the majority of global mortality, and metabolic lifestyle disorders — obesity, type 2 diabetes mellitus (T2DM) and hypertension — form the fastest-growing component of this burden.ⁱ India is undergoing an accelerated epidemiological and nutrition transition in which traditional cereal- and millet-based regional diets are being displaced by energy-dense, ultra-processed food patterns, driving a parallel surge in central obesity and dysglycaemia.^{ii iii iv}

Classical Ayurveda conceptualises this cluster as *Santarpanajanya Vyadhi* — disorders of over-nourishment — and traces its causation to a single, unifying etiological framework, the *Trividha Hetu*, enunciated by Acharya Charaka:

*Asātmendriyārthasamyogaḥ prajñāparādhaśca kālapariṇāmah | sarvaronāṇām
abhisamāsenā hetavo bhavanti ||*

— Charaka Samhita, Sutrasthana 11/43

The three roots — *Asatmendriyārtha Samyoga* (unwholesome contact of the sense organs with their objects), *Pragyaparadha* (offence against wisdom/volitional transgression), and *Kaal Parinam* (pathogenic transformation of time and season) — are described as the etiology of *all* diseases ('Sarva Roganam').^v Among the sense organs, the *Rasanendriya* (sense of taste, seated in the Jihva) is uniquely positioned in metabolic disease: it is the primary interface between the external food world and the internal Dosha–Dhatu–Mala economy, governing *Bodhaka Kapha* stimulation, *Jatharagni* activation and the initiation of *Rasa Dhatu* formation.

Ayurvedic dietetics operationalises correct sensory–dietary engagement through the eight *Ahara Vidhi Visheshayatna* — the determinants of wholesome food intake described in Charaka Vimana Sthana 1/21 — which encompass not only *what* is eaten but *how*, *when* and *by whom* it is eaten.^{vi} Persistent transgression of these principles reflects *Pragyaparadha*, classically defined through impairment of *Dhi* (discriminative intellect), *Dhriti* (restraint) and *Smriti* (memory).^{vii} Charaka further identifies excess *Madhura* and *Snigdha* Rasa, *Avyayama* (physical inactivity) and *Divasvapna* as the cardinal Nidanas of Sthoulya and Prameha.^{viii}

1.1 Research gap and rationale

Despite the theoretical sophistication of the Trividha Hetu, three gaps persist. First, no *validated, quantitative* instrument exists for measuring classical etiological constructs such as Asatmendriyārtha Samyoga and Pragyaparadha in clinical research. Second, the Trividha Hetu has never been empirically tested as a *unified* (rather than fragmented) model of causation in a modern cohort. Third, no rigorous study has isolated Rasanendriya — and its three forms of misuse (Atiyoga, Ayoga, Mithyayoga) — as a primary etiological axis in the Santarpanajanya Vyadhi complex. Addressing these gaps is consistent with the wider agenda of evidence-informed, integrative Ayurveda.^{ix x}

1.2 Aims and objectives

The study aimed to critically evaluate the Trividha Hetu, with special reference to Rasanendriya Asatmendriyārtha Samyoga, in present-day lifestyle disorders. The specific objectives were: (i) to assess the pattern and severity of Rasanendriya misuse and its three sub-types; (ii) to determine the dominant sub-type in contemporary patients; (iii) to correlate the Trividha Hetu constructs with anthropometric and biochemical parameters; and (iv) to develop and validate a structured measurement tool.

2. Materials and Methods

2.1 Study design, setting and duration

This was a cross-sectional, mixed-method (predominantly quantitative) observational study conducted over six months in the Outpatient Department (OPD) of Kayachikitsa (General Medicine) of an Ayurvedic postgraduate teaching institute affiliated to Maharashtra University of Health Sciences (MUHS), Nashik. The classical framework was first established through a literary review of the Bruhat Trayi (Charaka Samhita,

Sushruta Samhita, Ashtanga Hridayam) and the principal commentaries (Chakrapani, Dalhana, Hemadri), which then informed the design of the observational component.

2.2 Participants

One hundred adults (18–60 years, either sex) were recruited by purposive/consecutive sampling. Eligible participants had a physician-confirmed diagnosis of one or more of: obesity (BMI > 25.0 kg/m², Asian cut-off). T2DM (FBS > 126 mg/dL, or HbA1c > 6.5%, or on anti-diabetic therapy)^{xi}; and/or hypertension (SBP ≥ 140 and/or DBP ≥ 90 mmHg, or on antihypertensive therapy, JNC-8)^{xii}. Type 1 diabetes, secondary hypertension, pregnancy/lactation, active psychiatric or cognitive impairment, chronic corticosteroid/immunosuppressant use, prior bariatric/major GI surgery, and malignancy were excluded. Written informed consent was obtained from every participant.

2.3 Measurement tool

A purpose-built 36-item structured questionnaire was administered, comprising four scored sections: Section C — Ahara Vidhi Visheshayatna adherence (8 items; higher = greater violation; range 8–32); Section D — Rasanendriya Asatmendriyartham Samyoga (17 items across Atiyoga [D1, max 18], Ayoga [D2, max 9] and Mithyayoga [D3, max 24]); Section E — Pragyaparadha indicators (7 items mapped to Dhi/Dhriti/Smriti, max 21); and Section F — Kaal Parinam dietary habits (4 items, max 12). Items used ordinal Likert-type scoring, and severity bands were pre-defined for each section.

2.4 Clinical and constitutional assessment

Height, weight, waist and hip circumference were measured with standardised technique; BMI and waist–hip ratio (WHR) were derived. Blood pressure was recorded as the mean of two readings after 5 minutes' rest. FBS and HbA1c were obtained from laboratory records. Deha Prakriti was assessed by a qualified Ayurvedic physician using a standardised Prakriti analysis sheet and classified as Vata-, Pitta- or Kapha-pradhana, Dwandwaja or Sama Prakriti.

2.5 Statistical analysis

Analyses used IBM SPSS Statistics v25 and R v4. Normality was tested with the Shapiro–Wilk test; as 7/14 continuous variables were non-normal, Spearman rank correlation (ρ) and non-parametric group comparisons (Mann–Whitney U, Kruskal–Wallis) were used throughout. Categorical associations used the chi-square or Fisher's exact test. The within-subjects Friedman test (with Bonferroni-corrected post-hoc comparisons) determined the dominant Rasanendriya sub-type. Predictors of BMI, FBS and SBP were modelled by multiple linear regression (enter method; multicollinearity checked by VIF). Internal consistency was quantified by Cronbach's alpha.^{xiii xiv} A two-tailed $p < 0.05$ was considered significant.

2.6 Ethical considerations

The protocol was approved by the Institutional Ethics Committee and the study was conducted in accordance with the ICMR National Ethical Guidelines for Biomedical and Health Research Involving Human Participants (2017).^{xv} The study was purely non-interventional; no therapeutic agent was administered and routine care was unaffected. Data were anonymised using unique identifiers, and the study was registered as an observational study with the Clinical Trials Registry–India (CTRI) prior to enrolment.

3. Results

3.1 Demographic, constitutional and clinical profile

The cohort ($n = 100$) had a mean age of 44.7 ± 9.0 years and a near-equal sex distribution (56% male). A majority were sedentary (61%) and urban (72%). Kapha Pradhana was the commonest constitution (44%); together with Kapha-dominant Dwandwaja, approximately 69% of participants carried constitutionally elevated Kapha. Clinically the cohort was markedly affected: 90% were obese (BMI ≥ 30), 94% diabetic and 73% in Stage 2–3 hypertension (Table 1).

Table 1. Demographic, constitutional and clinical characteristics of the cohort ($n = 100$)

Parameter	Value	Detail / interpretation
Age (years)	44.7 ± 9.0	Peak burden in the 41–50 y decade (35%)
Sex (male / female)	56% / 44%	Female BMI higher ($p = 0.002$)
Occupation — sedentary	61%	Avyayama; low physical activity
Residence — urban	72%	Urban nutrition-transition exposure

Kapha Pradhana Prakriti	44%	Dwandwaja 23%, Pitta 23%, Vata/Sama 5% each
BMI (kg/m ²)	33.7 ± 3.4	Obese Class II on average; 90% ≥ 30
Waist–hip ratio	0.94 ± 0.06	Central (abdominal) obesity pattern
FBS (mg/dL)	163.4 ± 34.4	94% in diabetic range
HbA1c (%)	7.17 ± 0.77	Sub-optimal glycaemic control
SBP / DBP (mmHg)	164.7 / 102.8	Stage 2–3 hypertension on average

3.2 Trividha Hetu scores and severity

All four constructs were uniformly elevated, each exceeding 70% of the maximum attainable score (Table 2). The primary outcome — the Rasanendriya (D) score — averaged 35.8 ± 6.3 (70.2%), with 87% of participants classified Severe or Very Severe and *not a single participant* in the Mild band. Ahara Vidhi adherence was Poor/Very Poor in 97% of cases, and Pragyaparadha was Moderate-to-High in 100%.

Table 2. Trividha Hetu questionnaire scores and severity classification (n = 100)

Section / sub-scale	Max	Mean ± SD	% of max	Severity
C — Ahara Vidhi Violation Index	32	24.87 ± 3.76	77.5%	Poor
D — Rasanendriya Total	51	35.80 ± 6.33	70.2%	Severe
D1 — Atiyoga	18	13.66 ± 2.50	75.6%	High
D2 — Ayoga	9	4.65 ± 1.39	52.2%	Moderate
D3 — Mithyayoga	24	17.49 ± 3.37	72.9%	High
E — Pragyaparadha	21	14.77 ± 3.06	71.4%	High
F — Kaal Parinam	12	8.42 ± 1.98	70.0%	Mod.–High

Severity for D: Mild 0–14, Moderate 15–28, Severe 29–42, Very Severe 43–51. Within Section D, 71% were Severe and 16% Very Severe.

Item-level analysis identified the most prevalent behaviours: excess Madhura Rasa consumption (92% scoring ≥ 2), fried/oily food (90%), eating when not hungry (90%) and eating while watching screens (the single highest-ranked Mithyayoga item, mean 2.4/3.0). Within Pragyaparadha, absence of regular exercise (Avyayama; mean 2.7 ± 0.5) was the highest-scoring item in the whole questionnaire.

3.3 Correlation of Rasanendriya score with clinical parameters

The D score correlated moderately with BMI and HbA1c but negligibly with blood pressure (Table 3). At sub-scale level, Atiyoga showed the single strongest correlation in the study — with BMI ($\rho = +0.615$) — while all three sub-types correlated significantly with HbA1c, indicating that any form of Rasanendriya misuse contributes to glycaemic dysregulation.

Table 3. Spearman correlations of Rasanendriya score and sub-scores with clinical parameters (n = 100)

Variable pair	Clinical outcome	ρ	p	Strength
D — Rasanendriya Total	BMI	+0.482	<0.001	Moderate
D — Rasanendriya Total	HbA1c	+0.438	<0.001	Moderate
D — Rasanendriya Total	FBS	+0.206	0.039	Weak
D — Rasanendriya Total	SBP / DBP	≈ +0.02	NS	Negligible
D1 — Atiyoga	BMI	+0.615	<0.001	Strong
D1 — Atiyoga	HbA1c	+0.414	<0.001	Moderate
D2 — Ayoga	BMI	+0.408	<0.001	Moderate
D2 — Ayoga	HbA1c	+0.356	<0.001	Moderate
D3 — Mithyayoga	HbA1c	+0.387	<0.001	Moderate

NS = not significant. Strength: $|p|$ 0.10–0.29 weak; 0.30–0.49 moderate; 0.50–0.69 strong; ≥ 0.70 very strong.

3.4 Inter-scale correlations — construct validity of the Trividha Hetu framework

All six pairwise correlations among the four sections were highly significant and very strong to strong ($\rho = 0.656$ – 0.838 ; all $p < 0.001$), the strongest being Rasanendriya–Ahara Vidhi ($\rho = 0.838$) and Rasanendriya–Pragyaparadha ($\rho = 0.794$) (Table 4). Each section also correlated independently with at least one clinical outcome, validating both the internal coherence and the clinical relevance of the framework.

Table 4. Inter-scale correlations demonstrating construct validity of the Trividha Hetu model (n = 100)

Construct pair	ρ	p	Strength
Rasanendriya (D) $\times$ Ahara Vidhi (C)	+0.838	<0.001	Very strong
Rasanendriya (D) $\times$ Pragyaparadha (E)	+0.794	<0.001	Very strong
Ahara Vidhi (C) $\times$ Pragyaparadha (E)	+0.794	<0.001	Very strong
Ahara Vidhi (C) $\times$ Kaal Parinam (F)	+0.752	<0.001	Very strong
Rasanendriya (D) $\times$ Kaal Parinam (F)	+0.742	<0.001	Very strong
Pragyaparadha (E) $\times$ Kaal Parinam (F)	+0.656	<0.001	Strong

3.5 Dominant form of Rasanendriya misuse

The Friedman test established a highly significant difference between the three sub-types ($\chi^2 = 185.71$, $p < 0.000001$), with all Bonferroni-corrected pairwise comparisons significant ($p < 0.001$). The rank order of dominance was Mithyayoga > Atiyoga > Ayoga (Table 5) — identifying qualitatively wrong dietary behaviour, rather than mere excess or deficiency, as the predominant mechanism.

Table 5. Dominant sub-type of Rasanendriya Asatmendriyarthasamyoga — Friedman test (n = 100)

Sub-type	Mean (max)	Median [IQR]	Rank
D3 — Mithyayoga (perverted use)	17.49 (24)	17 [16–20]	1 (dominant)
D1 — Atiyoga (over-indulgence)	13.66 (18)	14 [12–16]	2
D2 — Ayoga (under-use / skipping)	4.65 (9)	5 [4–5]	3

Friedman $\chi^2 = 185.71$, $p < 0.000001$; all pairwise post-hoc comparisons $p < 0.001$ (Bonferroni).

3.6 Categorical associations

Two categorical associations were significant. Prakriti was associated with Ahara Vidhi severity ($\chi^2 = 17.17$, $df = 8$, $p = 0.028$): Kapha Pradhana individuals showed the poorest adherence (63.6% Very Poor vs 20% in Vata Pradhana). BMI category was associated with Rasanendriya severity ($\chi^2 = 8.20$, $df = 2$, $p = 0.017$), with a dose-response pattern — 17.8% of Obese Class II were Very Severe versus 0% of Class I. Trividha Hetu scores did not differ significantly by sex or Prakriti on group comparison, indicating that Rasanendriya misuse is a broadly universal behavioural phenomenon in this cohort.

3.7 Independent predictors of BMI

In multiple linear regression the overall model was highly significant ($R^2 = 0.346$; $F(5,94) = 9.96$, $p < 0.001$). The Rasanendriya score remained an independent predictor of BMI after adjustment for the other constructs and age ($\beta = +0.258$, $p = 0.006$), while age was a significant inverse predictor (Table 6). All VIF values were < 5 , confirming no problematic multicollinearity despite the high inter-scale correlations. Parallel models for SBP identified age as the sole predictor, consistent with the negligible Rasanendriya–blood-pressure correlations.

Table 6. Multiple linear regression — predictors of BMI (n = 100)

Predictor	β	t	p	VIF
D — Rasanendriya Total	+0.258	2.834	0.006	4.04
C — Ahara Vidhi Total	+0.162	1.081	0.283	3.84
E — Pragyaparadha Total	−0.009	−0.053	0.958	3.20
F — Kaal Parinam Total	−0.376	−1.618	0.109	2.56
Age (years)	−0.103	−3.179	0.002	1.04

Model: $R^2 = 0.346$, adjusted $R^2 = 0.312$, $F(5,94) = 9.96$, $p < 0.001$. Residuals normal (Omnibus $p = 0.180$).

3.8 Instrument reliability

The full 36-item questionnaire demonstrated excellent internal consistency (Cronbach's $\alpha = 0.932$). The primary outcome Section D was Good ($\alpha = 0.852$), and Sections C (0.798) and E (0.718) were Acceptable. Section F's lower alpha (0.556) is attributable to its 4-item length rather than conceptual incoherence (a 12-item version is projected to reach $\alpha \approx 0.80$ by the Spearman–Brown formula).

4. Discussion

This study provides, to our knowledge, the first empirical validation of the Trividha Hetu as an integrated model of disease causation, and the first quantitative demonstration that Rasanendriya Asatmendriyarth Samyoga — especially Mithyayoga — is a fundamental, measurable driver of contemporary lifestyle disorders. Three findings are central: the near-universal, high-grade involvement of all three Hetus; the dominance of Mithyayoga; and the independent predictive relationship between the Rasanendriya score and BMI.

4.1 The Trividha Hetu as a unified, empirically coherent framework

The six very-strong-to-strong inter-scale correlations ($\rho = 0.656$ – 0.838) demonstrate that Asatmendriyarth Samyoga, Ahara Vidhi violation, Pragyaparadha and Kaal Parinam are not siloed phenomena but mutually reinforcing facets of a single etiological system — precisely as Charaka's 'Sarva Roganam' formulation predicts. The Pragyaparadha–Rasanendriya link ($\rho = 0.794$) reflects the classical causal hierarchy in which cognitive failure (impaired Dhi–Dhriti–Smriti) precedes and precipitates improper sensory engagement. That every construct still exceeded 70% of maximum, with no participant in the lowest severity band for D, C or E, indicates that these etiological factors operate at a population rather than merely individual level in urban India.

4.2 Rasanendriya, Atiyoga and the pathogenesis of Sthoulya and Prameha

Excess Madhura Rasa was the single most prevalent behaviour (92%), and Atiyoga showed the strongest correlation with BMI ($\rho = +0.615$). This maps directly onto Charaka's etiology of Prameha and Sthoulya, in which Guru–Madhura–Snigdha Ahara, Avyayama and Divasvapna drive Kapha Vriddhi and Meda Dushti. The Ayurvedic cascade — excess Madhura Rasa → Kapha Vriddhi → Meda over-production → Medovaha Srotorodha → Agni Vaigunya → Ama — parallels the modern sequence of high glycaemic load → hyperinsulinaemia → lipogenesis → visceral adiposity → insulin resistance. Crucially, the Rasanendriya score retained independent predictive power for BMI in regression ($\beta = +0.258$; $R^2 = 0.346$) despite high multicollinearity, confirming that it captures a specific dietary-behavioural dimension of adiposity beyond general behavioural violation — consistent with the primacy Ayurveda accords Rasanendriya in metabolic disease.

4.3 Mithyayoga dominance — recasting the dietary narrative

The most novel finding is that Mithyayoga — qualitatively wrong dietary behaviour — dominates over Atiyoga and Ayoga (Friedman $\chi^2 = 185.71$, $p < 0.001$). Its leading manifestations — eating while watching screens, junk/fast food (Ahitahara), excess of a single Rasa, stale/reheated food (Paryushita Ahara) and irregular meal timing — reflect a contemporary collapse of mindful, wholesome eating. Screen-based eating ('Vikshipta Chittena Bhunjana') violates the cardinal 'Tanmana Bhunjita' principle; modern evidence that attentive eating reduces intake and that distraction impairs satiety signalling supports the same mechanism.^{xvi} reheated/oxidised foods parallel research on dietary advanced glycation end-products,^{xvii} and irregular timing aligns with chrononutrition data linking late, mistimed eating to poorer glycaemic and metabolic outcomes.^{xviii}

^{xix} ^{xx} The public-health implication is significant: the prevailing 'eat less' message addresses Atiyoga, a secondary mechanism, whereas the dominant lever in this cohort is qualitative-behavioural reform.

4.4 Pragyaparadha and the neuroscience of self-regulation

Pragyaparadha was universal (100% Moderate/High), led by Avyayama — the highest-scoring item overall. The Ayurvedic triad of Dhi, Dhriti and Smriti maps onto the modern constructs of executive function, inhibitory control and working memory, domains consistently impaired in obesity and metabolic syndrome.^{xxi} 'Continuing harmful food despite knowing it is harmful' (Dhi Vibhramsha) and 'inability to resist temptation' (Dhriti Vibhramsha) correspond to reward-driven overriding of rational control mediated by dopaminergic circuitry and to documented self-regulation failure and the intention–behaviour gap.^{xxii} This convergence

suggests that classical Pragyaparadha-correcting interventions — Sattvavajaya, Sadvritta, Vyayama — are conceptual analogues of contemporary mindfulness and executive-function training.

4.5 Kaal Parinam and chrononutrition

Kaal Parinam violations were led by absence of seasonal dietary modification (non-adherence to Ritucharya) and major dietary change over the past decade. The former constitutes Kaal Viruddha Ahara^{xxiii}; the latter captures the population-level nutrition transition displacing traditional, Ritucharya-aligned diets with globally uniform ultra-processed patterns. The strong Kaal Parinam–Ahara Vidhi correlation ($\rho = 0.752$) confirms that temporal misalignment is embedded within the broader pattern of dietary transgression rather than acting in isolation.

4.6 Prakriti as a constitutional substrate

Kapha Pradhana predominated (44%; ~69% Kapha-elevated overall) and was significantly associated with the poorest Ahara Vidhi adherence ($p = 0.028$). This is consistent with the classical view that Kapha's inherent Guru–Snigdha–Sthira–Sheeta qualities predispose to Meda accumulation, Mandagni and Sthoulya, and with contemporary work supporting Prakriti as a reproducible constitutional phenotype.^{xxiv} Although Prakriti-wise differences in scores did not reach significance — likely owing to small Vata/Sama cells ($n = 5$ each) — the directional trends (highest BMI and FBS in Kapha Pradhana) were uniformly concordant with classical prediction.

4.7 Blood pressure: a distinct, multi-Dosha pathway

The negligible Rasanendriya–blood-pressure correlation, with age as the sole SBP predictor, is coherent with Ayurvedic theory rather than contradictory to it. Raktachapa Vriddhi is a predominantly Vata–Pitta disorder driven by Vyana Vayu Vaishamya, Pitta–Rakta Dushti and Vata-Prakopaka Hetus (stress, Vegadharana, Jara Parinam) — factors only partly captured by a taste-focused instrument. This underscores the specificity of the tool: it tracks the Kapha–Meda pathway of Sthoulya and Prameha more faithfully than the Vata–Pitta pathway of hypertension.

4.8 Clinical and public-health implications

The findings operationalise Nidana Parivarjana — avoidance of causative factors as the first line of treatment — into a concrete clinical priority: address Mithyayoga first (eliminate screen-eating, junk food, Viruddha Ahara, irregular timing), then Atiyoga, while correcting Pragyaparadha through Vyayama and behavioural restraint and restoring Ritucharya. The validated D score (an independent BMI predictor) offers a monitorable target for such interventions, and Kapha-Pradhana patients warrant Prakriti-tailored Deepana–Pachana and Kapha-nashana regimens.

4.9 Strengths and limitations

Strengths include a psychometrically robust novel instrument ($\alpha = 0.932$) and a multi-method statistical validation of a classical construct. Limitations must temper interpretation: the cross-sectional design precludes causal inference; the single-centre, urban-predominant cohort limits generalisability; small Vata/Sama Prakriti cells restricted subgroup testing; Section F requires expansion for adequate reliability; Manasika Dosha (Rajas/Tamas) was not quantified; and most participants were on pharmacotherapy, so partially treated clinical values may attenuate observed associations. Prospective, multi-centre, drug-naïve studies using an expanded instrument are the logical next step.

5. Conclusion

The Trividha Hetu — Asatmendriyārtha Samyoga, Pragyaparadha and Kaal Parinam — emerges from this study as a universal, clinically valid and empirically supported model of causation for present-day lifestyle disorders. Among the Jnanendriya, Rasanendriya holds the most pivotal etiological position, and its misuse — dominated by Mithyayoga rather than mere caloric excess — is a fundamental, measurable driver of Sthoulya and Prameha. The Rasanendriya score independently predicts BMI, and the four constructs form a single, tightly inter-correlated etiological system. These results demand a reorientation of management toward qualitative dietary reform through Nidana Parivarjana, Prakriti-specific Ahara Vidhi guidance, Sattvavajaya-based Pragyaparadha correction and Ritucharya. The remarkable concordance between a framework articulated two millennia ago and the findings of modern nutritional epidemiology, behavioural neuroscience and chronobiology affirms the enduring clinical relevance of Acharya Charaka's teaching:

Saṅkṣepataḥ kriyāyogo nidānaparivarjanam |
— Sushruta Samhita, Uttaratantra 1/25

In essence, the foundation of all treatment is avoidance of the cause. This study has identified, measured and empirically validated that cause — the Trividha Hetu, with Rasanendriya Asatmendriyarth Samyoga as its foremost dietary axis.

Declarations

Ethics approval and consent: The study was approved by the Institutional Ethics Committee and registered with CTRI; written informed consent was obtained from all participants.

Source of funding: None declared.

Conflict of interest: The authors declare no conflict of interest.

Author contributions: LA conceived and conducted the study, collected and analysed data, and drafted the manuscript. The Guide and Co-Guide supervised the design, provided classical and methodological oversight, and critically revised the manuscript. All authors approved the final version.

Data availability: Anonymised data are available from the corresponding author on reasonable request.

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