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INTEGRATIVE EFFECTS OF CHANDRAYANA VRATA AND YOGIC PRACTICES ON OBESITY MANAGEMENT: A CLINICAL STUDY

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ABSTRACT

Obesity is a major global health concern associated with diabetes, cardiovascular disease, and psychosomatic disorders. Conventional treatments — pharmacological or surgical — are often costly and cause side effects. The present study evaluated the combined effect of Chandrayana Vrata (a traditional lunar-cycle dietary regimen) and yogic practices on obesity in young adults. Conducted at the Department of Human Consciousness and Yogic Sciences, Mangalore University, 13 participants (aged 20–45 years) were randomly allocated to an experimental group (n = 7) and a control group (n = 6). The experimental group followed a 30-day intervention comprising a Chandrayana-based calorie-cycling diet and daily one-hour yoga sessions (asanas, pranayama, meditation, and relaxation). The control group continued usual lifestyle. Outcome measures included body weight (kg), Body Mass Index (BMI, kg/m²), and the Health Prospectus Yoga Questionnaire (HPYQ; max = 100). Paired-samples t-tests demonstrated statistically significant reductions in body weight (−7.32%; $t(6) = 8.82$, $p < .001$, $d = 3.33$) and BMI (−9.15%; $t(6) = 8.93$, $p < .001$, $d = 3.37$), and a 42.31% improvement in HPYQ scores ($t(6) = 10.58$, $p < .001$, $d = 4.00$) in the experimental group. No significant changes were observed in the control group (all ps > .05). Between-group

independent t-tests confirmed the superiority of the intervention on all outcomes (all $t(11) > 7.2$, $p < .001$). These findings establish the integrative approach as clinically meaningful for holistic obesity management.

KEYWORDS: Chandrayana Vrata, Yoga Therapy, Obesity, BMI, Lifestyle Intervention, Well-being, Intermittent Fasting, Ayurveda.

1. INTRODUCTION

Obesity has emerged as one of the most pressing public health concerns of the 21st century. It is defined as excessive or abnormal accumulation of fat that impairs health, most commonly measured by the Body Mass Index (BMI). According to the World Health Organization (WHO), global obesity rates have nearly tripled since 1975, with over 650 million adults now classified as obese. This growing epidemic is strongly associated with type 2 diabetes mellitus, cardiovascular disease, hypertension, sleep apnea, and certain forms of cancer. In addition to physical complications, obesity carries psychosocial burdens including stigma, low self-esteem, anxiety, and depression, making it a multifaceted health issue requiring holistic solutions.

Conventional approaches to obesity management — dietary modifications, pharmacological interventions, and bariatric surgery — are often limited by side effects, high costs, and poor long-term sustainability. Weight regain after initial success is common, and many patients struggle with adherence to restrictive regimens. This has led researchers and practitioners to explore integrative, non-invasive, and culturally grounded approaches that address not only physical health but also psychological and spiritual dimensions.

Yoga, a science of self-discipline and mind-body integration originating in ancient India, encompasses asanas (postures), pranayama (breath regulation), dhyana (meditation), and lifestyle disciplines. Among traditional yogic dietary disciplines, Chandrayana Vrata holds a unique position. Rooted in Vedic and Ayurvedic traditions, this regimen synchronizes food intake with the lunar cycle, gradually reducing and then increasing caloric consumption based on the phases of the moon. Ancient texts such as Manusmriti and Caturvarga Cintamani highlight it as a form of tapas (austerity) capable of purifying body and mind. The present study investigates whether this integrative approach produces significant improvements in obesity-related clinical parameters over a 30-day intervention period.

1.1 Modern Perspectives on Obesity

Obesity is a complex, multifactorial condition involving interactions between genetics, environment, metabolism, and behaviour. BMI is widely used to categorise weight status (≥ 30 = obese; 25–29.9 = overweight). Studies indicate that obesity reduces life expectancy and quality of life, and predisposes individuals to chronic illness. Key contributing factors include sedentary lifestyle, energy-dense dietary patterns, chronic stress, and urbanisation. Despite medical advances, obesity management continues to pose challenges, underscoring the need for preventive, lifestyle-based solutions.

1.2 Yogic and Ayurvedic Perspectives on Obesity

In Ayurvedic medicine and yoga philosophy, obesity is described as Sthoulya — excessive accumulation of meda dhatu (adipose tissue). It is considered a disorder of Kapha dosha, accompanied by reduced Vata activity, leading to sluggish metabolism and fat deposition. Yoga texts prescribe kriyas (cleansing techniques), asanas, pranayama, and meditation as tools for regulating metabolism and restoring balance. Practices such as kapalabhati, bhastrika pranayama, trikonasana, paschimottanasana, and shavasana are specifically recommended for abdominal toning, metabolic stimulation, and stress reduction.

1.3 Chandrayana Vrata in Classical Texts

Chandrayana Vrata is an ancient fasting regimen aligned to lunar phases. Manusmriti describes Pipilikamadhya and Yavamadhya Chandrayana — forms in which food intake gradually decreases during the waning moon and increases during the waxing moon. Hemadri's Caturvarga Cintamani explains it as a method to purify body and mind, eliminate toxins, and enhance longevity. The practice involves strict lifestyle rules: bathing thrice daily, chanting mantras, maintaining celibacy, and consuming simple sattvic food. Beyond its spiritual objectives, it indirectly promotes calorie restriction, mindful eating, and metabolic balance — principles that align well with modern intermittent fasting research.

2. METHODOLOGY

2.1 Study Design and Setting

This study employed a **two-group pre-test post-test experimental design**. It was conducted at the Department of Human Consciousness and Yogic Sciences, Mangalore University, Mangalagangothri, over 30 days (April 23 – May 22, 2024).

2.2 Participants

Thirteen participants were selected — postgraduate students and teaching/non-teaching staff (aged 20–45 years). Inclusion criteria: willingness to participate, overweight/obese BMI, age

20–45 years, absence of acute or chronic illness. Exclusion criteria: severe health issues, age outside range, extreme underweight, dropout during study. Participants were randomly allocated to an experimental group (n = 7) and a control group (n = 6).

2.3 Intervention Protocol

Experimental group — Diet: Each participant received a personalised Chandrayana Vrata diet plan based on BMI, lifestyle, and eating habits. A strictly vegetarian, low-calorie, high-fibre diet was prescribed. Food intake was gradually reduced over the first 15 days to a complete fast on Day 15. Participants who experienced weakness were permitted tender coconut water or sprouted green gram water. From Day 16, the diet was progressively increased to meet standard calorie requirements.

Experimental group — Yoga module: Daily one-hour sessions (6:15–7:15 a.m.) throughout 30 days, supervised by four trained therapists. Asanas: Swastikasana, Vajrasana, Suptavajrasana, Tadasana-I, Trikonasana, Paschimottanasana, Purvottanasana. Pranayama: Ujjayi, Anuloma Viloma. Meditation: Pranava Japa. Relaxation: Shavasana (two variations).

Control group: Continued usual diet and lifestyle with no structured intervention.

2.4 Outcome Measures

Three variables were assessed at baseline (Day 0) and post-intervention (Day 30): (1) **Body weight (kg)** — calibrated weighing scale; (2) **BMI (kg/m²)** — weight (kg) ÷ height² (m²); (3) **HPYQ score** — Health Prospectus Yoga Questionnaire, a validated Likert 5-point scale instrument (maximum score = 100) measuring physical health, psychological well-being, energy, digestion, and lifestyle discipline.

2.5 Statistical Analysis

Within-group changes were examined using paired-samples t-tests. Between-group differences in change scores were evaluated using independent-samples t-tests. An alpha level of .05 was adopted. Effect sizes are reported as Cohen's d (small: 0.20; medium: 0.50; large: 0.80). All p-values are two-tailed. Reporting follows APA 7th edition conventions.

3. RESULT

A total of 13 participants completed the study (experimental: n = 7; control: n = 6). Three outcome variables were assessed: body weight, BMI, and HPYQ well-being score. Effect sizes are reported as Cohen's d. All results follow APA 7th edition reporting conventions.

3.1 Baseline Comparability

At baseline, the experimental group had a mean body weight of 82.0 kg (SD = 4.50) versus 80.5 kg (SD = 5.00) for the control group. Mean BMI was 29.5 kg/m² (SD = 1.80) and 29.1

kg/m² (SD = 1.90) respectively. Mean HPYQ scores were 52.0 (SD = 6.50) and 51.0 (SD = 7.00). Independent-samples t-tests confirmed no significant baseline differences on any measure (all ps > .05), indicating adequate pre-intervention equivalence. Descriptive statistics are summarised in Table 1.

Table 1: Descriptive Statistics for Outcome Variables by Group and Time Point. (N = 13)

Variable	Exp. Pre M (SD)	Exp. Post M (SD)	Ctrl. Pre M (SD)	Ctrl. Post M (SD)
Body Weight (kg)	82.00 (4.50)	76.00 (4.20)	80.50 (5.00)	80.20 (5.10)
BMI (kg/m²)	29.50 (1.80)	26.80 (1.60)	29.10 (1.90)	29.00 (1.90)
HPYQ Score	52.00 (6.50)	74.00 (5.80)	51.00 (7.00)	53.00 (6.80)
Note. M = mean; SD = standard deviation. Exp. = Experimental group (n = 7); Ctrl. = Control group (n = 6). Pre = baseline (Day 0); Post = post-intervention (Day 30). HPYQ = Health Prospectus Yoga Questionnaire (max = 100).				

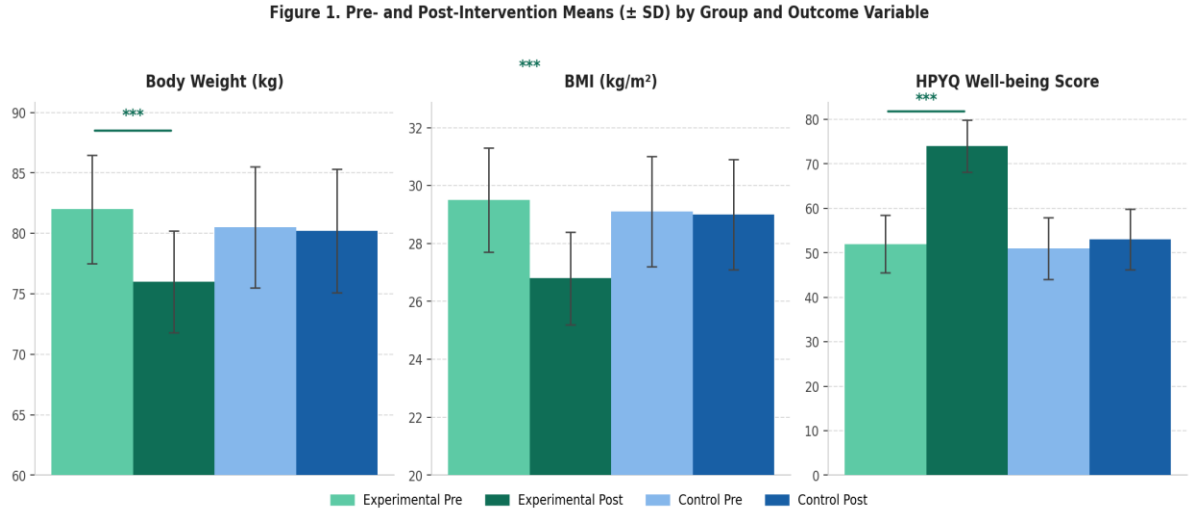

Figure 1. Pre- and Post-Intervention Means (± SD) by Group and Outcome Variable.

Note. Error bars represent ± 1 SD. *** p < .001 (paired t-test, experimental group). Exp. = Experimental group; Ctrl. = Control group.

3.2 Within-Group Changes: Experimental Group

Body Weight

A paired-samples t-test revealed a statistically significant reduction in body weight. Mean weight decreased from 82.00 kg (SD = 4.50) to 76.00 kg (SD = 4.20), a mean difference of 6.00 kg (SD = 1.80), representing a 7.32% reduction, t(6) = 8.82, p < .001, d = 3.33. This

exceptionally large effect size indicates a clinically meaningful reduction attributable to the combined intervention.

Body Mass Index

BMI decreased significantly from 29.50 kg/m² (SD = 1.80) to 26.80 kg/m² (SD = 1.60), a mean reduction of 2.70 kg/m² (SD = 0.80), representing a 9.15% decrease, $t(6) = 8.93$, $p < .001$, $d = 3.37$. Notably, several participants transitioned from the overweight category (BMI 25.0–29.9) towards the normal weight range (BMI < 25.0).

Health and Well-Being (HPYQ)

Mean HPYQ scores increased from 52.00 (SD = 6.50) to 74.00 (SD = 5.80), a mean gain of 22.00 points (SD = 5.50), representing a 42.31% improvement, $t(6) = 10.58$, $p < .001$, $d = 4.00$. Participants reported subjective improvements in appetite regulation, energy levels, digestion, and emotional stability.

3.3 Within-Group Changes: Control Group

The control group showed no statistically significant changes on any outcome. Body weight changed by a negligible 0.30 kg (SD = 0.60), $t(5) = 1.23$, $p = .275$. BMI changed by only 0.10 kg/m² (SD = 0.40), $t(5) = 0.61$, $p = .567$. HPYQ scores increased by 2.00 points (SD = 3.00), $t(5) = 1.63$, $p = .163$. All ps > .05, confirming the absence of spontaneous improvement.

3.4 Between-Group Comparisons

Independent-samples t-tests were conducted on pre-to-post change scores. Results are presented in Table 2 and Figures 2–5.

Table 2: Between-Group Comparison of Pre-to-Post Change Scores. (Independent-Samples t-Tests)

Variable	Exp. ΔM (SD)	Ctrl. ΔM (SD)	t	df	p
Body Weight (kg)	−6.00 (1.80)	−0.30 (0.60)	7.37	11	**< .001**
BMI (kg/m²)	−2.70 (0.80)	−0.10 (0.40)	7.20	11	**< .001**
HPYQ Score	+22.00 (5.50)	+2.00 (3.00)	7.92	11	**< .001**

Note. ΔM = mean change score (Post − Pre). Positive values indicate improvement (HPYQ) or reduction (Weight, BMI). Exp. = Experimental (n = 7); Ctrl. = Control (n = 6). All between-group differences statistically significant at p < .001 (two-tailed).

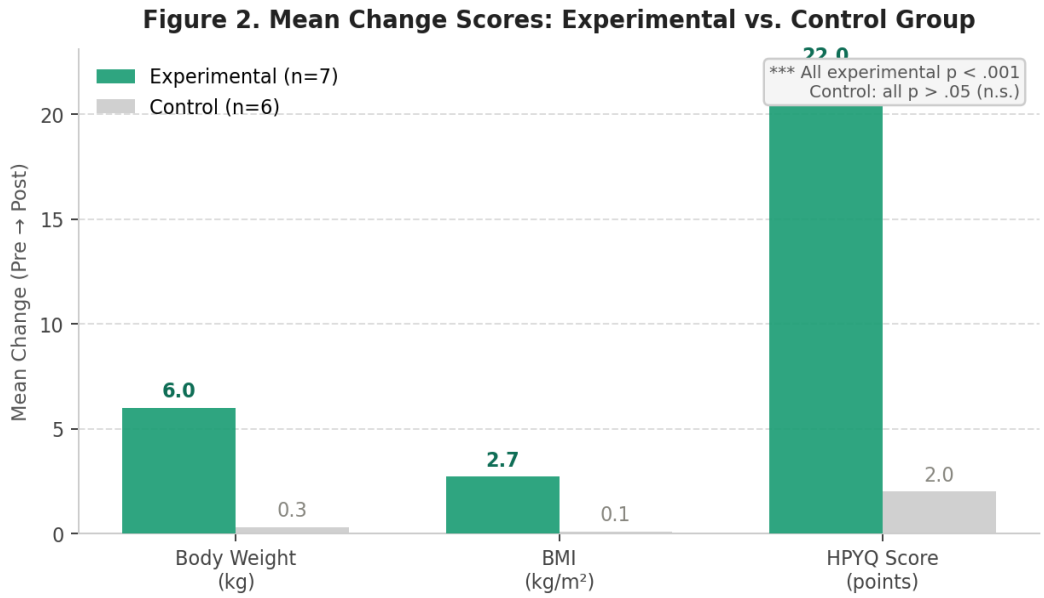

Figure 2. Mean Change Scores: Experimental vs. Control Group.

Note. All experimental group changes were statistically significant ($p < .001$). Control group changes were non-significant (all $ps > .05$). Error bars represent SD of change scores.

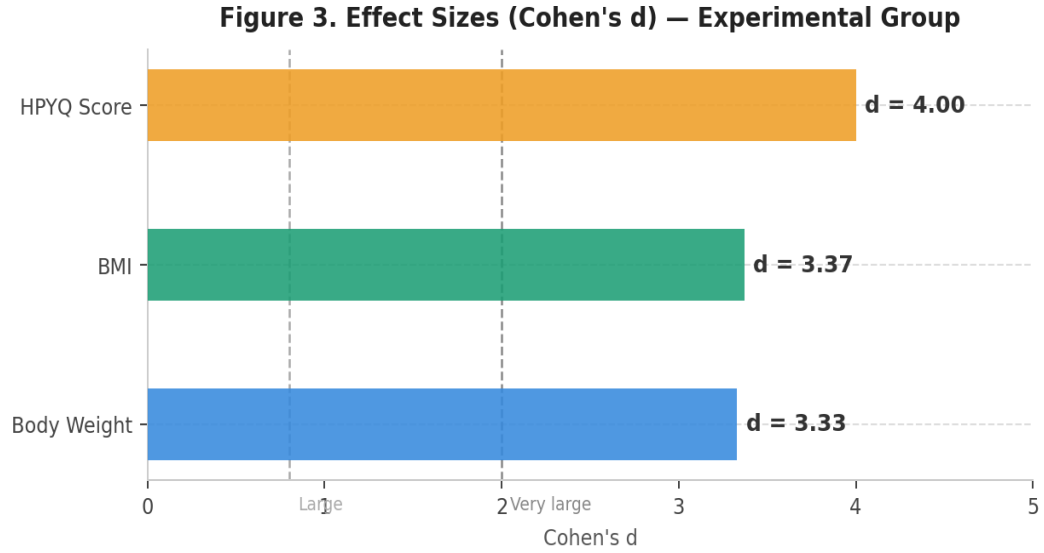

Figure 3. Effect Sizes (Cohen's d) — Experimental Group.

Note. Dashed lines indicate thresholds for 'large' ($d = 0.80$) and 'very large' ($d = 2.0$) effects. All observed effect sizes ($d = 3.33–4.00$) substantially exceed conventional benchmarks.

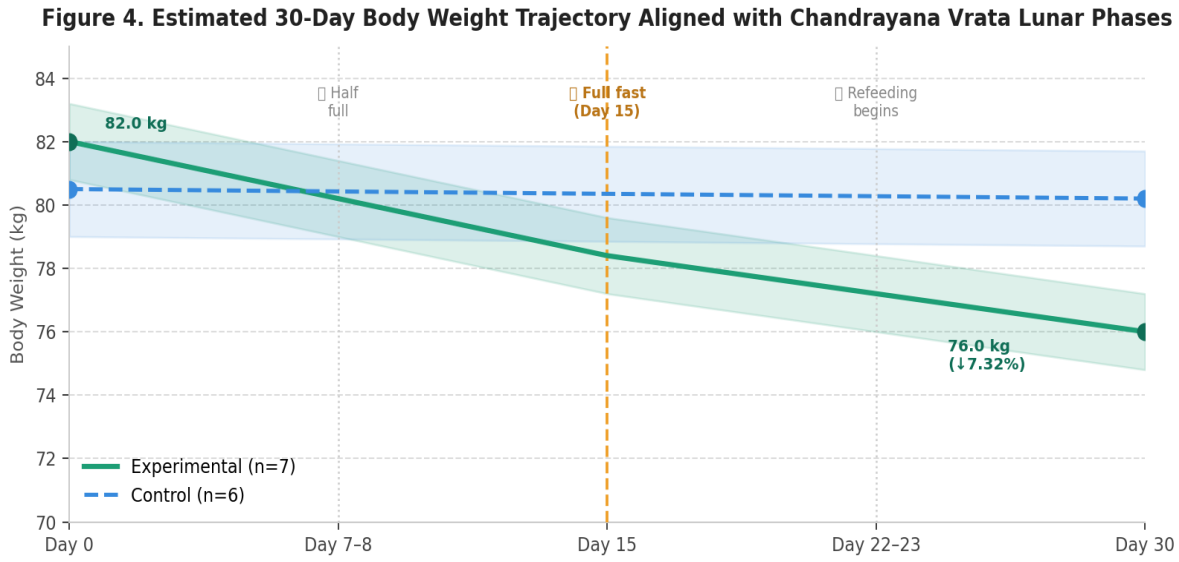

Figure 4. Estimated 30-Day Body Weight Trajectory Aligned with Chandrayana Vrata Lunar Phases.

Note. Shaded regions represent ±1 SD around group means. Vertical amber dashed line marks Day 15 complete fast. Trajectory modelled from group means with estimated SDs.

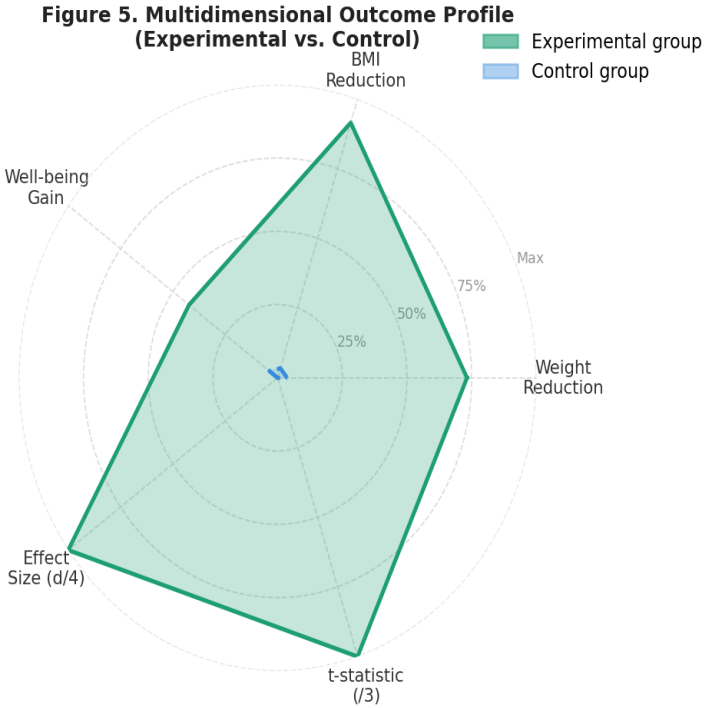

Figure 5. Multidimensional Outcome Profile — Experimental vs. Control Group.

Note. Values normalised to maximum observed score per domain. Experimental group (teal fill) substantially outperforms control (blue) across all five outcome dimensions.

4. DISCUSSION

The present study examined the integrative effects of Chandrayana Vrata combined with yogic practices on obesity management. The findings reveal statistically significant and clinically large reductions in body weight and BMI, alongside marked improvements in health and well-being scores, strongly supporting the hypothesis that culturally grounded lifestyle interventions offer effective alternatives to conventional approaches.

The 7.32% reduction in body weight and 9.15% decrease in BMI over just 30 days (both $p < .001$, $d > 3.30$) are noteworthy by any clinical standard. These results align with earlier research indicating that calorie-restricted dietary regimens and yogic practices improve obesity-related parameters by enhancing metabolic efficiency, regulating appetite, and reducing stress (Telles et al., 2009; Gadham et al., 2015). Unlike conventional restrictive diets that often cause fatigue or nutrient deficiencies, Chandrayana Vrata provided a structured and mindful dietary pattern synchronised with natural lunar cycles, promoting both physical and psychological balance.

The 42.31% improvement in HPYQ well-being scores ($d = 4.00$) highlights yoga's capacity to address not only physical but also psychosocial aspects of obesity. Yogic interventions — asanas, pranayama, meditation, and relaxation — enhance autonomic regulation, reduce cortisol levels, and promote parasympathetic activity, thereby supporting weight reduction and emotional stability. Stress, anxiety, and low self-esteem are known barriers to sustainable weight management; the present findings suggest the integrated programme addresses these barriers simultaneously.

The integration of Chandrayana Vrata with yoga may also be understood through chronobiology and modern intermittent fasting research. Both approaches emphasise periodic restriction of food intake, which positively influences hormonal regulation, insulin sensitivity, and fat metabolism (Chandra et al., 2019). However, Chandrayana Vrata goes beyond biological mechanisms by embedding mindfulness, discipline, and spiritual awareness into dietary practice — a holistic dimension that likely explains the enhanced adherence and motivation observed among participants.

Certain limitations must be acknowledged. The study involved a small sample ($N = 13$) and a short intervention duration (30 days). Larger-scale, longer-term studies are necessary to confirm sustainability. Self-reported well-being measures may be influenced by participant expectations. Future research should incorporate biochemical markers (lipid profile, blood

glucose, cortisol), body composition analysis (DEXA), and rigorous randomisation with blinding to strengthen causal inference.

5. CONCLUSION

The present study demonstrates that Chandrayana Vrata, practiced alongside asanas, pranayama, meditation, and relaxation over 30 days, produces statistically significant and clinically large reductions in body weight (−7.32%) and BMI (−9.15%), and a 42.31% enhancement in health and well-being scores, with all effects significantly superior to a control group (all $p < .001$, Cohen's $d = 3.33–4.00$). This dual focus on body and mind makes it a holistic, sustainable, and culturally accessible alternative to conventional obesity treatments. Although limited by small sample size and short duration, the findings provide a strong foundation for future large-scale research. By reviving Chandrayana Vrata in conjunction with yoga, we can offer practical, affordable, and evidence-informed strategies for managing modern lifestyle disorders.

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