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Original Research Article

Effect of patanjali yoga sutra on personality development: A randomized controlled trial

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ABSTRACT

Background: The Yoga Sutras of Patanjali describes a wise process of living that promotes balance and harmony. The study evaluates the personality development or positive changes from the physical to the spiritual through the Patanjali Yoga Sutra.

Material and Methods: A randomized controlled trial included 200 participants (age – 21-25 yrs.), both gender physically fit for the yoga module. Participants were undergraduate students from Ambala, Haryana. Participants were equally randomized to each group (100). The researcher used structured and planned intervention methods for the experiments—the practice of techniques given in *Patanjali Yoga Sutras*. Tools for data collection were structured questionnaires (Demographic data), Vedic Personality Inventory (VPI), and a general health questionnaire (GHQ-28).

Results: Results were analyzed as per intention to treat analysis. *Sattva*, *Tamas*, *Rajas*’, and GHQ’s Total scores differed statistically significantly (p -value < 0.000) in both groups. We found greater improvement in the YG compared to the CG. *Sattva* score in YG increased dramatically from 30.70 (8.635) to 49.99 (15.137), simultaneously increasing from 30.01 (10.508) to 41.94 (13.667) in CG. *Rajas*’ score in YG significantly reduced from 37.12 (13.318) to 27.68 (9.043) and decreased significantly from 41.94 (13.966) to 30.01 (10.508) in CG. *Tamas*’ score in YG significantly reduced from 37.22 (10.669) to 22.34 (10.780), whereas it was the same as 28.20 (10.453) in CG.

Conclusion: The results have shown that *Yoga* practice has improved the personality of young, healthy volunteers by increasing their *Sattva* Guna and reducing their *Rajas* and *Tamas*.

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1. Introduction

Personality development is indispensable in the empirical world’s journey of success, name, and fame.¹ In the initial stage, the empirical personality, which is Prakriti (matter)-based, is developed, but sooner or later, one realizes the limitations of this personality.² Yoga is currently only thought of asanas and pranayama or as an alternative therapy for treating illness and managing stress, diluting the fundamental essence of yoga.^{3,4} The Karma Yoga (path of single action), Jnana Yoga (the understanding of self),

Bhakti Yoga (Trust in the highest order), and Raja Yoga (Asana, Pranayam, Meditation) schools of thought are all included in the Yoga way of life.⁵ This knowledge may result in a total personality makeover on the physical, emotional, mental, and spiritual levels, strengthening one’s capacity and motivation to perform to the best of one’s potential.⁶ According to the ancient Yoga teacher Patanjali, Yoga is a method for calming the mind’s mental fluctuations so that one might arrive at the core of the real. The Yoga Sutras of Patanjali describes a wise process of living that promotes balance and harmony. The complete text is 195 aphorisms (Sutras) called Patanjali Yog Sutra (PYS).⁵⁻⁷

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The Sutras are short, concise, meaningful, experiential, and organized systematically and practically. There are lots of myths surrounding yoga.^{8,9} One of the main ones is probably that practicing yoga would help one become less involved in everyday life. It is not for householders because it is often held that one must become a hermit or a saint to practice yoga or that yoga is solely for older and retired adults, not young people. Husbands worry that if their wives practice yoga, they may become disinterested in the outside world. Intellectuals and prosperous people believe that Yoga practices are useless for them.^{8–10} Another myth about yoga is that it requires one to modify their eating habits and switch to a bland diet. However, the goal of yoga is to obtain freedom (mentally and emotionally) and happiness; to do this, one does not have to renounce their regular life.^{7–10} These benefits of Yoga practices are scarcely acknowledged or comprehended. The spiritual dimension adds depth to the Yoga idea of personality. Being spiritually rooted, sturdy, and strong helps to keep us firmly planted.^{11–13} The study evaluates the personality development or positive changes from the physical to the spiritual through the PYS.

2. Materials and Methods

The research scholar plans to use quantitative methods and includes structured and planned intervention methods for the experiments.

2.1. Research design

Randomized Controlled Trial

2.2. Population

The population consists of undergraduate students from Ambala, Haryana.

2.3. Sample size

Total calculated sample size consists of 200 students, 100 in each group.

2.4. Inclusion criteria

We included the participants (age – 21-25 yrs.), both gender and willing to participate in the study and physically fit for the yoga module.

2.5. Exclusion criteria

Patients had an allergy to oil application primarily through the nasal route, any severe respiratory ailments (URTI, allergic rhinitis, sinusitis, asthma), any severe psychiatric disorder (schizophrenia, mania, bipolar disorders OCD), chronic illness (diabetes mellitus, hypertension), taking medications like alpha-blockers,

beta-blockers, corticosteroids, ace inhibitors, and statins, drug withdrawal syndromes (barbiturates, tranquilizers), substance abuse like alcohol ingestion and withdrawal, endocrine or metabolic disorders (hypothyroidism or hyperthyroidism), pregnant & lactating women were excluded. Figure 1

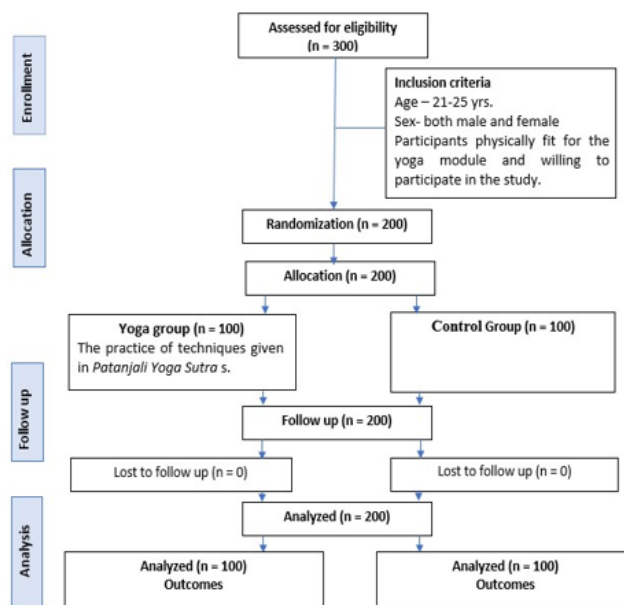


Figure 1: Consort flow diagram

3. Ethical Consideration

The Institutional Ethical Committee granted its ethical clearance. Participants were informed of the specifics of the study's intervention, and their informed consent was acquired.

3.1. Structured intervention sessions

The practice of techniques given in PYSs.

- Pranayama
- Nadi sodhan pranayama
- Bhramari pranayama
- Meditation (Dhyan)
- Standing balancing postures

3.2. Tools for data collection

1. Structured questionnaire (Demographic data)
2. *Vedic Personality Inventory* - The Original Personality Test, the most thoroughly investigated and validated psychological diagnostic tool based on the three Guna's is the Vedic Personality Inventory (VPI), was created by Dr. David Wolf. It has 32 for the Tamo guna, 28 for the Rajo guna, and 30 for the *Sattva* guna. The *Sattva*, *Rajas*, and *Tamas* Gunas are evaluated on

a 7-point Likert-type scale by the VPI. The responses for each item in a *guna's* mode are added to get the *Guna's* score, then divided by the mode's total number of items. A higher score for each subscale denotes a stronger preponderance of that mode. The three domains have a minimum and maximum score range of 1–7. With Cronbach's alpha values ranging from 0.850 for *Sattva*, 0.915 for *Rajas*, and 0.699 for *Tamas*, VPI has strong internal consistency and stability.¹⁴

3. *The General Health Questionnaire-28*: The self-administered GHQ-28 is considered suitable for research purposes. The GHQ-28 focuses on deviations from normal function that prevent a person from engaging in their typical healthy activities. The questionnaire asks about any worrisome new phenomena that have emerged in recent weeks. It discloses the most recent mental state, indicating the presence of a potential psychiatric disorder. With a Cronbach's alpha of 0.85 and validity of 0.76, this survey has acceptable psychometric qualities and good internal consistency and reliability.^{15–17}

3.3. Data extraction

The data extraction was done on 1st day and the 30th day for the *Yoga* and control groups. After the pre-and post-intervention data collection, normality distribution was done to apply appropriate statistics.

Table 1: Demographic characteristics of participants

	Groups	
	Yoga	Control
Gender		
Female	43	61
Male	57	39
Age (Years)		
21	43	27
22	11	21
23	30	25
24	16	27
Habitat		
Rural	73	94
Urban	27	6
Family members		
1	0	4
2	1	9
3	1	5
4	31	37
5	45	45
6	20	0
7	2	0

Table 2: Comparison of pre-post intervention descriptive statistics

	Groups	N	Pre-intervention mean	Post-intervention Mean
Age	Yoga	100	22.1900 (1.16076)	
	Control	100	22.5200 (1.15889)	
Sattva	Yoga	100	30.01 (10.508)	41.94 (13.667)
	Control	100	37.12 (13.318)	27.68 (9.043)
Rajas	Yoga	100	41.94 (13.966)	30.01 (10.508)
	Control	100	37.22 (10.669)	22.34 (10.780)
Tamas	Yoga	100	28.20 (10.453)	28.20 (10.453)
	Control	100	8.8400 (1.12564)	5.9200 (1.23648)
GHQ Total score	Yoga	100	8.8300 (1.18964)	8.8300 (1.18964)
	Control	100		

Table 3: Post intervention test statistics for significant difference between both groups

	Sattva	Tamas	GHQ Total score
Mann-Whitney U	3437.500	3228.500	591.500
Wilcoxon W	8487.500	8278.500	5641.500
Z	-3.819	-4.332	-10.912
Asymp. Sig. (2-tailed)	0.000*	0.000*	0.000*

Note- Mann-Whitney U test applied, GHQ -General Health Questionnaire Std.- Standard, * P value significant < 0.05 level. Sig.-significant

3.4. Statistical analysis

The Shapiro-Wilk test checked the normality of data. SPSS version 23 (SPSS, Inc., Chicago, IL) was used for analysis. All quantitative variables were measured as mean, standard deviation, and standard error. Proportions and frequencies were described for categorical variables and compared using the Chi-square test. All applied statistical tests were measured on a two-sided significance level of $p < 0.05$. Independent t-test or Mann-Whitney U test was applied to explore the —between and within-group differences among three study groups.

4. Results

4.1. Participants and descriptive data

Results were analyzed to treat analysis. One hundred participants were diagnosed, and the drop-out rate was nil. In the *Yoga* and control groups, equal (100) participants were available post-intervention.

Table 4: Post intervention difference between both groups for rajjas scores

	Levene's Test for Equality of Variances		t-test for Equality of Means					
	F	Sig.	T	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Rajas	0.973	0.325	-1.681	0.014*	-2.330	1.386	-5.064	0.404

Note- Independent t Test Std.- Standard, * P value significant <0.05. Sig.-significant

Table 1 This table depicts the number of participants involved in both groups. A total of 100 participants were included in each group. Female/ male participants were 43 /57 % in the Yoga group and 61/39 % in the control group. It describes the frequency of participants' ages in each group. In the Yoga group, the majority (43%) of participants were 21 (years). In the control group, the majority (27%) of participants belonged to two age groups – 21 and 24 (years). Both groups had a minimum number of participants aged 22 (years). This table describes the habitat of participants. In the yoga group, (73%) majority of participants were from rural areas, and 27 % were from urban areas. In the control group, (94 %) majority of participants were from rural areas, and 6 % were from urban areas. It describes the frequency of participants' family members in both groups. Both groups had a similar 45% frequency of five family members. All participants

Data were checked for normality, which stated that age, *Rajas*, and total GHQ scores were normally distributed. Scores indicate that *Sattva* and *Tamas* variables were not normally distributed.

Table 2 The mean age of participants was 22.19 ± 1.16076 and 22.5200 ± 1.15889 years in the Yoga and control groups, respectively. It states the descriptive statistics for all baseline data. It includes the mean and standard deviation of scores.

Mean *Rajas* scores for the Yoga and control groups were 30.70 ± 8.635 and 30.01 ± 10.508 , respectively.

Mean *Sattva* scores for yoga and control groups were 37.12 ± 13.318 and 41.94 ± 13.966 , respectively. Mean *Tamas* scores for yoga and control groups were 37.22 ± 10.669 and 28.20 ± 10.453 , respectively. The total GHQ scores for the yoga and control groups were 8.8400 ± 1.12564 and 8.8300 ± 1.18964 , respectively. Mean *Rajas* scores for the Yoga and control groups were 27.68 ± 8.635 and 30.01 ± 10.508 , respectively. Mean *Sattva* scores for Yoga and control groups were 49.99 ± 9.043 and 41.94 ± 13.667 , respectively. Mean *Tamas* scores for Yoga and control groups were 22.34 ± 10.780 and 28.20 ± 10.453 , respectively. Mean GHQ total scores for the Yoga and control groups were 5.9200 ± 1.23648 and 8.8300 ± 1.18964 , respectively.

Nonparametric (Mann-Whitney U) test was applied to *Sattva*, *Tamas*, and Total GHQ scores to measure the significant difference between both groups at baseline. For

the outcome of *Sattva* scores, there was a statistically significant difference (Z-3.819, p-value- 0.000) between both groups. For the *Tamas* score, both groups had a statistically significant difference (Z-4.332, p-value- 0.064). GHQ Total scores were statistically significantly different (Z-10.912, p-value- 0.000) between both groups.

Normality distribution of post-intervention data was done in both groups. It states that *Rajas*' scores were normally distributed. P value was considered significant as <0.05 level. Results indicate that *Sattva*, *Tamas*, and total GHQ scores had important values <0.05, which states that scores were not normally distributed.

Sattva, *Tamas*, and *Rajas*' scores differed statistically significantly (p-value < 0.000) in both groups. GHQ Total scores were also statistically significantly different (p-value < 0.000) between both groups. (Tables 3 and 4)

We found greater improvement in the YG compared to the CG. *Sattva* score in YG increased dramatically from 30.70 (8.635) to 49.99 (15.137), simultaneously increasing from 30.01 (10.508) to 41.94 (13.667) in CG. *Rajas*' score in YG significantly reduced from 37.12 (13.318) to 27.68 (9.043) and decreased significantly from 41.94 (13.966) to 30.01 (10.508) in CG. (Table 4) *Tamas*'s score in YG significantly reduced from 37.22 (10.669) to 22.34 (10.780), whereas it was the same as 28.20 (10.453) in CG. (Table 3)

Table 4 Based on the normal distribution of data, a parametric test (independent t-test) was applied to *Rajas*' scores to measure the significant difference between both groups. A statistically significant difference in participants' *Rajas* scores (t-1.681, 95% CI-5.064- 0.404, p-value- 0.014) was noted.

5. Discussion

The study evaluated the effect of *PYS* and *Ashtanga Yoga* practices on the individual's personality. We examined personality in all dimensions, from the physical to the spiritual, with the help of methods in the *PYS* text. As propounded in the *Patanjali Yoga Sutra*, *Ashtanga Yoga* is one concept that could cater to developing different aspects of human personality. We measured all dimensions through the Vedic personality inventory and GHQ-28. *Sattva*, *Tamas*, and *Rajas*' scores differed statistically significantly (p-value < 0.000) in both groups. GHQ Total scores were also statistically significantly different (p-

value < 0.000) between both groups. We found greater improvement in the Yoga group compared to the control group. *Sattva* score in the *Yoga* group increased dramatically from 30.70 (8.635) to 49.99 (15.137), simultaneously increasing from 30.01 (10.508) to 41.94 (13.667) in the control group. *Rajas*' score in the *Yoga* group significantly reduced from 37.12 (13.318) to 27.68 (9.043) and decreased significantly from 41.94 (13.966) to 30.01 (10.508) in the control group. *Tamas*'s score in the *Yoga* group significantly reduced from 37.22 (10.669) to 22.34 (10.780), whereas it was the same as 28.20 (10.453) in the control group.

The *Gunas* initially range in dominance when evaluating an individual's personality, but over time, the person's personality mostly settles on one of the *Gunas*.¹⁸ Eventually, though very slowly, through a sort of moral evolution, the individual's personality moves from *Tamas* and *Rajas* to *Sattva*, and finally, through the *Gunas*, moves and achieves liberation. Our study amply demonstrates this pattern of change towards an increase in *Sattva* and a decrease in *Tamas* following four weeks of *Yoga* practices. Human behavior is a reflection of several different *Gunas* working together. The ugliest side of our personalities, *Tamas*, is characterized by excessive sleepiness, laziness, sadness, procrastination, powerlessness, impulsivity, rage, and arrogance (filled with life energy). To move towards *Rajas* (the shining one), which is characterized by intense activity, ambition, competitiveness, high self-importance, desire for sense satisfaction, lack of interest in spiritual altitude, dissatisfaction with one's position, jealousy of others, and a worldly cleverness, we must first reduce *Tamas* through mastery over the mind.¹⁹ *Rajas* and *Tamas* are the outward signs of a violent mental state in which one cannot control irrational emotions and impulsive behavior. *Yoga* is well-known for helping to promote good health in the physical, mental, social, emotional, and spiritual realms, which leads to feeling energized, self-assured, and in control of the senses, with harmony and coordination between the right and left brain functions, and free from stress. *Rajas* and *Tamas* are the outward signs of a violent mental state in which one cannot control irrational emotions and impulsive behavior. *Yoga* is well known for helping to promote good health in the physical, mental, emotional, social, and spiritual realms, which leads to feeling energized, self-assured, and in control of the senses, with harmony and coordination between the right and left brain functions, and free from stress.²⁰ With continued development and mastery, one enters the state of *Sattva* dominance, characterized by honesty, stability, discipline, and self-control. It also includes a preference for vegetarianism, sharp intelligence, honesty, gravity, dutifulness, separation, respect for superiors, staunch commitment, and stability in adversity. It also includes conscious action. As a result, it is clear that despite both *Rajas* and *Tamas* possessing both positive and negative traits, they both represent a

violent mental state in which a person lacks control over their personality or the capacity to enhance some aspects of their overall health. Through *Yoga*, *Sattva* grew. *Yoga* can therefore be advised for its added benefits of fostering personality development because it is more in line with Indian traditional practices and is affordable.²¹ It is well known that exercise is linked to better cognitive results. Mounting research indicates that mind-body interventions such as yoga may have comparable effects.

Although personality is related to routine activities and cognition, it is unclear how nature plays a part in the relationship between mind-body practice and awareness. The current study investigates bidirectional temporal relationships between personality traits, mind-body training, and understanding in healthy people (N = 2051) using data from waves 2 and 3 (2004-2014) of the Midlife in the United States study.²² Using 9,284 data samples and the Ecological Systems Theory as a foundation, This study investigated the links between teen personality qualities and physical activity, in addition to the mediating effect of peer interactions and the moderating role of parent-child relationships. The regression analysis findings demonstrate that regular physical activity considerably benefits the emergence of personality traits like neuroticism, conscientiousness, and agreeableness.²³ *Sattva* improved in both the yoga and control groups, with a tendency for yoga to have a higher effect size. *Rajas* scores were reduced in both but significantly better in the physical exercise group than in *yoga*, and *Tamas* reduced in the physical exercise group. The general health status improved in the *Yoga* and control groups.²⁴

Researchers noted significantly increased *Sattva* scores and reduced *Rajas*'s and *Tamas*'s scores in YG. The results have shown that the yoga module has improved the personality of HGs by increasing their *Sattva* *Guna* and reducing their *Rajas* and *Tamas*.²¹ Transcendental meditation is a technique for smoothly reducing mental activity, allowing the body to enter a deeper level of sleep while the mind stays clear and awake. Orme-Johnson et al. at the University of Texas demonstrated that mediators exhibit a higher physiological equilibrium than non-mediators. He also explained that mediators are more effective than non-mediators at maintaining this balance under pressure.²⁵ David completed a study and found that yoga boosts personal productivity.²⁶

6. Strength and Limitations

We compared the findings with the control group in equal allocation. The sample size was adequate, and the drop-out rate was nil compared to other studies in the same intervention.

However, it was an open-label trial conducted in a single center. Subjective questionnaires were used to measure and compare the results. The assessed variables were self-

reported in nature. Follow-up is also not executed.

7. Conclusion

The results have shown that *Yoga* practice has improved the personality of young, healthy volunteers by increasing their *Sattva Guna* and reducing their *Rajas* and *Tamas*. Further, *yoga* is cost-effective. However, to benefit from *yoga*, one has to adopt *yoga* as a life management technique. This would include the Raj Yoga practices of asana, pranayama, and meditation and imbibe the concept of *Karma*, *Jnana* and *Bhakti Yoga*. Such an integrated approach can yield superior results for individual happiness and performance. Hence, this study suggests a solution to calm their mind and help them to increase their *Sattva Guna* and improve their personality. Based on the study results, we are motivated to recommend similar experimental studies in multiple settings to refine these findings and insights further.

8. Source of Funding

None.

9. Conflict of Interest


None.

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