

## PSYCHOLOGICAL AND PHYSIOLOGICAL STUDIES ON THE EFFECT OF YOGIC EXERCISES IN NORMAL RURAL YOUTH

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### ABSTRACT

The present study is an attempt to evaluate the effect of Yogic exercises on certain psychological and physiological measures in a pre-post design. Thirty normal rural youth who agreed to participate voluntarily, were selected randomly. Psychological assessment was done using Self-evaluation scale (An anxiety scale: for state, trait and free-floating anxieties), An adjustment scale, Beck depression inventory (B.D.I.), Eysenck personality inventory (EPI) and Immediate memory span. Normal rural youth were administered a battery of test before undertaking yogic exercises to establish the baseline and all the tests were repeated after undergoing yogic exercises for a period of 3 months. There were significant changes in all psychological variables. The physiological measures like pulse rate, respiration rate/per minute, diastolic and systolic blood pressure and breath-holding time/per minute were also measured before and after yogic exercises. There were significant changes in their pre and post treatment scores for all physiological measures.

**Key words :** Psychological, Physiological, Yogic exercise, Rural Youth, Stress, Psychosomatic, Psycho-social, Cognition, Anxiety, Depression, Neuroticism & Extraversion.

### INTRODUCTION :

The progress and prosperity of an agricultural country like India largely depends upon how effectively and efficiently the human resource potential of the rural youth is developed and fruitfully utilized in farming activity. The youth in India constitute 19 percent of the total population out of which nearly three-quarters of population live in rural areas. Rural youth essentially form a vital human resource. Youth is time of life full of potential albeit/fraught with problem. Hence the rural youth face stiff competitions for limited available job opportunity, stresses of matrimony, housing difficulties, scarcity of resources, and the dilemma between following local traditions and culture and adjusting to a more appealing westernized life style. Individualistic outlook, mad rush for material gains and positions, time bound work pressures and role strains are some of the important conditions of modern life causing stress, tension and psychosomatic and psychosocial problems. On every side we see anxious, unhappy youth who miss the realization of their potential because they cannot find adequate solutions or answers to problems that seem beyond them. Some of the more hardly among us even seem to thrive on the multiple challenges our situations present, but many of us, the test of our resources proves too great and our attempts to cope become erratic and nonfunctional, perhaps even self damaging. This narrows and perverts our outlook and quite often youth fall prey to the distress. Youth bereft with travails and trials of life, cowed own with dilemma loses half of his potentialities and thereafter his productivity and work

output is also reduced likewise. Consequently the agricultural and farming activities, which he conducts, are not according to his full potential, which in turn affects the amount of produce, a nation receives.

Therefore emphasis should be on a healthy and productive rural youth working at full stream and enriching the nation in its wake.

Questions rises that how can youth of rural region-where basic amenities are hard to find, let alone better medical and consulting facilities, which are not only costly but hard to come by-be helped in leading less stressed and more productive life. So it is imperative to find how best rural youth can adjust in stressful conditions. Yogic techniques including certain relaxing asanas, nadi sodhan pranayama and meditation seem a good answer and have been found quite useful and effective in managing stress related problems and transforming the cognition to promote positive attitude and emotion. The aim of yoga therapy is to minimize the preoccupation, increase self-awareness and thereby produce better integration of the personality with resulting actualization of one's creative potentialities. Yoga deals with the 'body-mind' complex and leads to higher levels on consciousness involving psychophysical process and brings about changes in the personality of a positive nature and allow the individual to achieve full potential as a human being and then to stretch beyond into spiritual consciousness. Udupa et al. (1973) found that the practice of yoga resulted in decrease in body weight, abdominal girth, biochemical responses, neuroticism index, mental fatigue, and an increase in the

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performance and memory quotients. Throll (1981) administered the EPI, the state-trait anxiety inventory and two questionnaires on health and drugs usage to 39 subjects before they learned TM. or PR. T.M. group displayed more significant and comprehensive results than did the PR group.

It has been observed in a study of Singh et al. (1982) on normal healthy volunteers that the practice of selected asanas, simple pranayam and meditation produced significant relaxative and rehabilitative influence on the body and mind. The yoga practitioners have exhibited evidence of improved mental competence in the indices of performance, memory quotient, neuroticism level, mental fatigue and CMI complaint score.

Anantharaman and Kabir (1984) studied the effect of yoga; the female college teachers were given yoga practices for 3 months. IPAT anxiety scale, Advanced progressive matrices, Digit forward and backward test and Number cancellation test were administered. There were significant changes in all variables except in anxiety. The physiological measures like pulse rate, systolic and diastolic BP and respiration rate were also measured. There were significant changes in all physiological measure after 3 months. Anantharaman (1989) strongly recommended the yogic exercise for maintaining a state of equilibrium between mind and body and described important psycho physiological developments found in 20 subjects who underwent yoga therapy.

Selvamurthy (1993) found significant improvement in body flexibility, physical performance and also in cognitive and non-cognitive functions. The psychological profile revealed a reduced anxiety level, improvement in concentration, memory, learning efficiency and psychomotor performance.

Similarly substantial reduction in depression, anxiety, psychotism, paranoid ideation, hostility, somatism, obsession and inter-sensitivity has been found on account of living a yogic life style. (Bhushan, 1998)

In the light of the above facts, a study has been conducted to find the effect of yogic exercises on certain psychological and physiological variables in normal rural youth.

#### **METHODOLOGY :**

The Dahtora village of Agra district of U.P. was purposively selected for the study due to the convenience. Thirty normal rural youth were selected randomly. They belonged to either of sex, male and female, ranging from 15 to 24 years in age. Both illiterates and literates were included in this study. The pre-post study design was followed.

Tools-Normal rural youth were administered a battery of tests before undertaking yogic exercises to establish the baseline and all the tests were repeated after undergoing yogic exercises for a period of 3 months.

(A) The following psychological tests were used in the present study :

- (1) The Self-Evaluation Scale (An Anxiety Scale: for State, Trait and Free-floating anxieties) by Tripathi and Rastogi (1983)
- (2) An Adjustment Scale (Tripathi, 1989)
- (3) Beck-Depression Inventory (Prasanta and Arora, 1988)
- (4) Eysenck Personality Inventory (Gupta, 1987)
- (5) Immediate Memory Span by Bhatia (1955)

(B) The following physiological measures were also measured :

- (i) Pulse rate/per minute
- (ii) Blood presser (Diastolic and Systolic)
- (iii) Respiration rate/per minute
- (iv) Breath-holding time.

The first author met the subjects and clarifications were effected. It was made certain that none of the volunteers had previous exposure to any aspect of yoga and that they were not using any alternative means of intervention like specified physical activity. Care was taken to see that they practiced yoga on all the days of 3 months, 45 minutes a day.

The asanas that were taught were simple and not complicated. The following yogic exercises were employed :

Sukhasana, Bhujangasana, Salbhashana, Pawan Muktasana, Sarvangasana, Yoga mudra, Shavasana, and some simple pranayama like Bhastrika, Nadi Shodhan, Bharamari And Kapal Bhati.

The data emerging from the above mention studies were statistically analyzed following standard statistical methods. Each group was identified on selected parameters by calculating means and SDs.

#### **RESULTS AND DISCUSSION :**

Results of the comparison of normal rural youth's pre-test Vs post-test are presented in Table and in the Figure. Post-test scores were significantly better than pre-test scores on all the parameters.

##### **(A) Psychological Parameters :**

1. **The self-evaluation scale (an anxiety scale : for state, trait and free-floating anxieties) :**  
The mean value of State, Trait and Free-floating anxiety in initial observations were  $50.70 \pm 6.22$ ,  $61.55 \pm 6.16$  and  $62.43 \pm 5.01$  respectively. After 3 months, the mean values were reduced to  $41.83 \pm 5.56$ ,  $50.57 \pm 4.69$  and

- 51.60 ± 4.03, respectively. Independent t-test revealed significant differences in their pre and post treatment scores (P < 0.001) on State, Trait and Free-floating anxiety, respectively. This finding is consistent with the results of the earlier studies, Udupa et al. (1973,75), Selvamurthy (1993) and Bhushan (1998).
2. An adjustment scale: The mean initial Adjustment scores of the Subjects were 38.13 ± 6.76. It was decreased to 29.53 ± 4.96 after 3 months therapy. The decreased value was statistically highly significant (P < 0.001). This is in agreement with the findings of Udupa et al. (1973) .
  3. Beck depression inventory (BDI): The initial mean value of depression was 9.30 ± 1.27, on post-test the mean value decreased to 7.10 ± 1.42. Significant differences were observed in their pre and post treatment scores (P < 0.001). This is in agreement with the findings of Udupa et al. (1975) and Bhushan (1998).
  4. Eysenck personality inventory (EPI): The mean values of Neuroticism & Extraversion scores in initial observations were 9.00 ± 1.86 & 10.67 ± 1.62, respectively. After treatment, the mean values were 6.67 ± 1.64 & 12.10 ± 1.42, respectively. There was significant decrease in Neuroticism scores (P < 0.001) but significant increase in Extraversion scores ( P < 0.001). Subjects dropped significantly between the pre-test and post-test on Neuroticism scores. This finding is in agreement with the findings of the earlier studies, Udupa et al. (1973) and Throll (1981).  
There was a significant increase in Extraversion scores. This findings is in agreement with the findings of the earlier studies (Throll 1981).
  5. Immediate memory span (IMS): The initial mean value of I.M.S. was 5.69 ± 0.79. On posttest, the mean value increased to 6.57 ± 0.91. Significant difference was observed in their pre and post treatment scores (P < 0.001). The present result supports the findings of Udupa et al. (1973), Singh et al. (1982), Anantharaman and Kabir (1984) and Selvamurthy (1993)
- (B). Physiological Parameters:
6. Pulse rate: The mean pulse-rate of the subjects before treatment is 73.30 with a SD of 1.79 whereas after treatment, it is only 67.17 with a SD of 2.37. With regard to pulse-rate there is a statistically significant decrease in post Practice

session of yoga ( P < 0.001). This finding is in line with that of Udupa et al. (1975) & Anantharaman and Kabir (1984).

**Table1. Mean, S.D. and t values of pre and post practice effect of yoga**

Variables	Pre-test		Post-test		t value	P
	Mean	S.D.	Mean	S.D.		
1. State Anxiety	50.70	6.22	41.83	5.56	5.82	0.001
2. Trait Anxiety	61.55	6.16	50.57	4.69	7.73	0.001
3. Free-floating Anxiety	62.43	5.01	51.60	4.03	9.23	0.001
4. Adjustment	38.13	6.76	29.53	4.96	5.62	0.001
5. B.D.I.	9.30	1.27	7.10	1.42	6.32	0.001
6. Neuroticism	9.00	1.86	6.67	1.64	5.15	0.001
7. Extraversion	10.67	1.62	12.10	1.42	3.64	0.001
8. I.M.S.	5.69	0.79	6.57	0.91	4.05	0.001
9. Pulse-rate	73.30	1.79	67.17	2.37	11.31	0.001
10. Systolic BP	124.03	4.36	117.10	2.62	7.46	0.001
11. Diastolic BP	75.77	3.54	71.47	4.15	4.32	0.001
12. Respiration	21.13	1.59	16.93	1.67	9.98	0.001
13. B.H.T.	57.73	5.89	65.53	5.40	5.34	0.001

7. **Blood pressure (BP) :** The mean values of Systolic and Diastolic B.P. in initial observation were 124.03 ± 4.36 and 75.77 ± 3.54, respectively. After 3 months, the mean values decreased to 117.10 ± 2.62 and 71.47 ± 4.15, respectively. The blood pressure both systolic and diastolic significantly dropped from pre-treatment to post-treatment ( P < 0.001). The present result supports the findings of Anantharaman and Kabir (1984).
8. **Respiration-rate :** The mean respiration rate of the subjects before treatment is 21.13 with a SD of 1.59 as compared to the mean of 16.93 with a SD of 1.67. there is a decrease in respiratory-rate/per minute after yoga intervention, which is significant (P < 0.001). This finding substantiates the findings of Udupa et al.(1973), Anantharaman and Kabir (1984) and Anantharaman (1989).
9. **Breath-holding time (BHT) :** In the basal assessment, the mean value of B.H.T. was 57.73 ± 5.89. The mean BHT was increase to 65.53 ± 5.40. Significant differences were observed in their pre and post treatment scores (P < 0.001). This findings is in line with that of Udupa et al. (1975).

**CONCLUSION :**

Significant improvement in the scores of all the psychological and physiological measures was observed in the normal rural youth. After practicing yogic exercises rural youth found themselves physically and men-

tally more fit and energetic and reported improvement in their digestion and sleep and felt themselves happier. They also reported substantial reduction in their negative feelings and emotions like anger, anxiety, depression, etc. It saves cost on medicine and surgery and adds to the confidence and will power of the rural youth due to which they not only fight with the germs of diseases but also learn the art of living a confident and happy life. This strengthens the immune system of the body.

However, they do indicate that yogic practices not only serve as curative and preventive against somatic problems, but also act as effective instruments of positive psychological and emotional transformation. Therefore, it is obvious that if yoga practices become wide spread and are adopted by the majority of rural youth, individual tensions will disappear eventually leading to lessening the friction and unrest in the society.

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