



## EFFECT OF TRANSCENDENTAL MEDITATION (TM) ON ANXIETY SCORE IN HEALTHY HUMANS

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**Abstract-** For present study 75 volunteers between 20-40 years were selected (37 males and 38 females) Volunteers were trained for Transcendental meditation (TM.) After training period they practiced TM every day 20 minutes for 6 weeks. Anxiety score was measured by using clinical anxiety scale (C.A.S.) as given by R.P.Sainath et al [1] before and after the TM session in each volunteer.

Comparison of anxiety score before and after the TM was done by statistical analysis. Anxiety score reduction was found significantly in females as compared to males who practiced TM.

**Key words-** Transcendental meditation, Anxiety score, clinical anxiety scale, statistical analysis

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### Introduction

Nowadays stress is an absolutely inevitable part of life. Stress causes hormonal changes, biochemical changes [2-4] various illnesses and psychosomatic diseases. [5, 6] Linkage between body and mind are now well appreciated and therefore one can use yogic practices in preventing and treating such stress related illnesses. Several studies have been done on effect of various yogic practices and meditation on anxiety score. [7-9]

The present study examined the effects of TM on anxiety score Transcendental meditation (TM) is a common form of meditation that is easy to learn.

### Methods and materials

Seventy five volunteers (37 males and 38 females) were selected. Following criteria were used for selecting the volunteers.

1. Age between 20 to 40 years
2. No history of heart attack, hypertension, diabetes, or any other chronic illness that required regular pharmacological treatment.
3. No history of major psychiatry disorders, current alcohol abuse/ dependency disorders.

Each volunteer was explained the whole programme. Interested and co-operative volunteers were selected. Written consent was obtained from volunteers. The volunteers were asked to discontinue if they felt giddy. An approval of institutional medical ethics committee was obtained before commencing the study.

Name, age, sex, height and weight of each volunteer were recorded. The anxiety score was measured in each volunteer and the readings were noted as controlled readings.

75 Volunteers were selected for present study - 37 male volunteers and 38 female volunteers.

Session was divided into:

1. Training session for 6 weeks
2. Practicing session for 6 weeks

### Session

Training session- In this session volunteers were trained for Transcendental meditation (TM). This is a progressive relaxation technique. Technique was taught by giving individualized personal instructions. Technique of TM was taught as below [10-13]

Meditator sits quietly in a comfortable position with his back erect, eyes closed, (lotus position) and takes slow and deep breaths.

Meditator silently repeats a mystical sound (mantra- OM) Repetition of mantra is supposed to be effortless. Meditator neither attempts to concentrate on sound nor attempts to prevent his/her attention from wavering. There is no need to prevent thoughts during TM. The meditator is instructed merely to concentrate on mantra. Gradually meditator learns to maintain awareness of mantra excluding the other thoughts, external influences and desires. Practicing session - Volunteers practiced TM for 20 minutes in the morning everyday for 6 weeks.

At the end of practicing session anxiety scores were recorded from all the volunteers. The results obtained were compared with the control readings taken before the session.

Student's "t" test was applied for statistical analysis of the results.

### Results

- There was no significant change in anxiety score in males, before and after the session however females showed significant difference in anxiety score (Table - I)
- Comparison of results in males and females showed that there is significant difference in males and females (Table - II) indicating that TM is more effective in reducing anxiety score in females.

Table 1 - Comparison of Anxiety score - Before and After the Session in Males and Females

Groups		No. of Observations	Mean (x)	S.D.	S.E.	t-value	p-value	Significance
Group-I (Males)	Before	37	5.08	1.07	0.23	0.1468	0.1476	Not Significant
	After	37	4.73	0.98				
Group-I (Females)	Before	38	6.87	0.8	0.177	3.566	<0.0004	Significant
	After	38	6.24	0.74				

Table 2- Comparison of Effect Anxiety Score - Males and Females

Groups		No. of Observations	Mean (x)	S.D.	S.E.	t-value	p-value	Significance
Group-I Males		37	0.3514	0.531	0.139	2.017	0.0434	Significant
Group-I Females		38	0.6657	0.6657				

### Discussion

Result of the present study indicate that there was significant reduction in anxiety scores in females and no significant reduction in anxiety score in males. This indicates that TM program reduced anxiety score in females.

Comparison of results in males and females showed statistically significant difference in reduction of anxiety score in males and females indicating that TM program had effect in reducing anxiety score in females but not males.

Stress is the organism's response to stressful conditions or stressors consisting of patterns of physiological and psychological reactions both immediate and delayed. Judith G. Rabkin and E.L. Struening [5] have explained how stressors are capable of causing illness. They have following sequence- social stressors, mediating factors, stress and onset of illness. Social stressors refer to personal life changes e.g. loss of job, marriage etc. Social stressor is any set of circumstances, which requires change in individuals ongoing life pattern. Mediating factors are those characteristics of stressful life events that influence person's perception or sensitivity to stressor. There are long standing precipitating factors such as behavioral patterns, childhood illness, social and personal characteristics that may alter person's susceptibility to illness. Onset of

illness is an appearance of clinical symptoms and signs of disease.

Several workers have correlated stress for conditions giving rise to illness and also studied effect of stress.

N.J. Christenson and E.W. Jensen [2] have studied effect of stress on plasma nor epinephrine and epinephrine and found that there are raised plasma epinephrine levels in patients with duodenal ulcer. There is no close relationship between plasma epinephrine and illhealth. In population study they found that low plasma levels were associated with an unfavorable survival rate.

Gunner Johansson et al [3] studied plasma TSH, T3, T4 levels before and after stress in males and females. They suggested that during psychological stress the pituitary -thyroid endocrine axis of females react differently than males. During intellectual stress females do not react as strongly as males and after the stress situation is over, females seem to maintain and re-establish their psycho endocrine homeostasis more effectively and rapidly than males. Vinay Agarwal et al [14] had shown that examination stress causes rise in serum cholesterol, triglyceride levels due to stress induced changes in hormone levels and peripheral lipolysis respectively.

Suls H. and B. Fletcher [6] have after their study concluded that incidence of stressful life events predicted subsequent illness among persons having low private consciousness as compared to persons of high self consciousness. Person with low self consciousness have a tendency to dis attain to their psychological and somatic reactions to stressful life events and fail to take corrective actions leading to lowered body resistance to stress and increased susceptibility to physical illness. Anxiety score measures the stress. Yogic exercises are supposed to decrease the anxiety. Therefore in the present study effect of TM on anxiety scale was studied. Several workers have studied the effect yoga on anxiety score.

Barry Backwell and Irwin Haneson [15] Gary E.Satwartz et al [16] Irving Krish and David Henry [8] Harris and S.B. Johnson [9] have studied effect of meditation on anxiety score and found significant reduction of anxiety score after TM. However others like Barbara L. Goldman et al [17] and Philip C.Boswell and E.T. Murry [18] found that there is no significant effect of meditation on anxiety score. But both of them studied effect of 1 -2 weeks meditation. It is possible that short term practice of meditation has no effect.

Six weeks of TM has reduced anxiety score in females. So it is concluded that such a technique practiced for a longer period may be effective in preventing the psychosomatic illness or may even be used as a part of therapy in psychosomatic illness.

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