



## Research article

# EFFECT OF YOGA ON MENTAL HEALTH AMONG YOUNG AND SENIORS IN INDIA

Mr.SHASHIDHARA

Research scholar, University College of Physical Education  
Bangalore University Bangalore, Bangalore, India.

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### Abstract

*India has a large number of senior citizens. Yoga can be wisely applied in old age care. There is no any age restriction to practice yoga. The effect may differ by age. There is a need to study the mechanism of action of yoga with respect to age. This study was conducted in India to find the effect of yoga on mental health between young and senior people. 40 normal healthy volunteers of both sexes were divided into two groups according to age. 20 participants of the age group between 65 to 75 years and 20 participants of the age group between 19 to 28 years were selected. This study was approved by the ethical committee of Karnatak University. Selected individuals were subjected to 90 min of yoga classes once or twice a week for a month. State Trait Anxiety Inventory (STAI) was given before yoga on the first day and after one month of practice to assess the change in State anxiety and Trait anxiety. Senior group – State anxiety score decreased from  $41.13 \pm 8.43$  to  $30.8 \pm 6.49$ , Trait anxiety score reduced from  $45.66 \pm 7.5$  to  $40.73 \pm 8.3$ . Younger group – State anxiety score reduced from  $38.7 \pm 4.8$  to  $30.8 \pm 4.1$ , Trait anxiety score reduced from  $46.2 \pm 7.9$  to  $42.9 \pm 9.1$ . Changes were statistically significant with  $P < 0.05$ . Reduction in State and Trait anxiety score signifies that yoga has both immediate as well as long-term effect on anxiety reduction. Thus yoga helps to improve the mental health in both the groups.*

**Keywords:** Mental health, State & Trait Anxiety, Stress, Yoga

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**Corresponding Author:** Mr.Shashidhara

**e-mail:** [kellurshashidhara@gamil.com](mailto:kellurshashidhara@gamil.com)

## INTRODUCTION

India is a country with a large number of senior citizens. In the year 2000, the population of people aged above 65 years was 17.3% and in 2009 it has reached 22%. Cancer and heart diseases are the two major causes of death in India. Dementia, stress, degenerative joint diseases and respiratory infections are the most common health problems affecting the elderly population. Daycare centers and old age homes are working hard to improve the quality of life of the aged. Different methods are being adopted to improve their lifestyle and keep them active. Music therapy, animal therapy, massage and stretch exercises are among them.

Yoga is an ancient Indian science which helps to improve physical, mental, social and spiritual health. Yoga has found its special existence in India by its peculiarities like asana and pranayama. But many consider yoga as an alternate to exercise. Few research works have been conducted in India on yoga. There is a need to show that yoga is not merely an exercise system but it has many more health benefits. It can be wisely applied in the old age care to improve the quality of life. Research is needed to understand the mechanism of action of yoga.

Stress is a major factor affecting the mental health of a person irrespective of age. Presentation of the stress may vary from that of fight to flight phenomenon. Chronic stress is the major cause of many

physical and mental disorders. Yoga has been effectively used in the management of stress. It has been observed that the practice of yoga decreases verbal aggressiveness compared to physical exercise. It is also useful against physical stress like cold exposure and stress due to diseases like epilepsy. Yoga has been found useful for mental disorders like depression. In a study conducted by Oken *et al.*, on healthy seniors participants were divided into three groups as yoga, exercise and waitlist control. The yoga group showed significant improvement in quality of life and physical measures compared to the exercise and waitlist control group.

Age is an important factor to be considered while studying the physiological changes. Even though there is no age restriction to practice yoga the effect may differ by age. There is a need to study the effect of yoga with respect to age.

## MATERIALS AND METHODS

### Subjects

In this study 40 normal healthy volunteers of both sexes, interested in yoga were selected. They were divided into two groups according to age. First group with 20 participants of age group between 65 to 75 years and a second group of 20 individuals between the age group of 19 to 28 years were selected.

Inclusion criteria

1. No previous experience in Yoga
2. In senior group - Controlled hypertension

Exclusion criteria

1. Severe systemic illnesses like severe hypertension and insulin-dependent diabetes mellitus, 2. Any painful condition like arthritis, 3. Recently undergone major surgery

Ethical clearance

Informed written consent was taken from all the participants.

This study was approved by the ethical committee of Karnatak University. Design of the study

It is a comparative study between the young and senior subjects to assess the effect of yoga on mental health. Fifteen seniors and 10 young participants were assessed before and after yoga practice.

**METHODS AND MATERIALS**

Selected individuals were subjected to 90 min of yoga classes once or twice a week for a month. Yoga classes were conducted in the morning between 6:30 to 8:30. They were instructed to practice Asanas, Pranayama and Meditation. Yoga program was designed based on:

1. Postures should be simple and safe
2. Should give stretch to the muscles of the extremities, trunk and neck
3. Should be performed in all postures: standing, sitting, supine and prone. Asanas were:

Standing position

Tadasana, Ardha katichakrasana, Pada hasthasana, Trikonasana.

Sitting position

Vakrasana, Vajrasana, Paschimottanasana, Gomukhasana.

Supine position

Pavanamuktasana, Pada uttanasana - Eka and Dwipada.

Prone position

Bhujangasana, Shalabhasana - Eka and Dwipada.

At the end of asana session, they were advised to practice Shavasana for 10 min.

After asanas, pranayama was practiced

1. Kapalabhati - 3 rounds each - 30 to 50 strokes,
2. Nadishodana pranayama - 3 rounds,
3. Bhramari -3 rounds, followed by 'OM' meditation for 15 min.

**Assessment criteria**

1. State Trait Anxiety Inventory (STAI) was given before yoga practice and after one month of yoga practice to assess change in State anxiety and Trait anxiety. The Japanese version of Form X was used, X-1 form for State anxiety that evaluates how respondents feel right now. Trait anxiety form X-2, assesses how people generally feel. Personality states are often transitory; they can recur when evoked by appropriate stimuli. In contrast personality traits can be conceptualized as relatively enduring differences among people in specifiable tendencies to

perceive the world in a certain way or behave in a specified manner with predictable regularity. Each form contains 20 questions and each question is rated 1 to 4. In responding to the STAI S-Anxiety scale, examinees blacken the number on the standard test form to the right of each item statement, that best describes the intensity of their feeling 1) not at all, 2) somewhat, 3) moderately so, 4) very much so. In responding to the T-anxiety scale examinees were instructed to indicate how they generally feel by rating the frequency of their feeling of anxiety on the following four-point scale: 1) almost never, 2) sometimes, 3) often, 4) almost always. The questionnaire contains both anxiety questions (e.g. I feel frightened, I feel upset) and anxiety absent questions (e.g. I feel calm, I feel relaxed). The scoring weights for the anxiety present items are the same as the blackened numbers on the test form i.e. 1, 2, 3 and 4. The scoring for the anxiety absent items are reversed i.e. responses marked 1,2,3,4 are scored 4,3,2,1 respectively. Scores for both the S- and T-anxiety scales can vary from a minimum of 20 to a maximum of 80.

### STATISTICAL ANALYSIS

Obtained data was analyzed statistically using paired *t* test to test the significance within the group, and compared between the groups using unpaired *t* test to assess the difference between the groups. SPSS program and

Microsoft Excel 2008 were used to perform statistical analysis. Level of significance was set at  $P<0.05$ .

### RESULTS

In senior group, out of 15 participants, 11 were females and four were males. In the 10 young participants, seven were females and three were males. In the senior group, five members were taking medicine for hypertension and it was under control.

#### STAI - Senior group

##### State anxiety

Score decreased from  $41.13\pm 8.43$  to  $30.8\pm 6.49$ ,  $P<0.05$  a statistically significant change.

##### Trait anxiety

Score for general feelings reduced from  $45.66\pm 7.5$  to  $40.73\pm 8.3$  with  $P<0.05$ , a statistically significant decrease.

When the change in state anxiety was compared with that of trait anxiety the difference was significant. The response was more for state anxiety.

#### STAI - Younger group

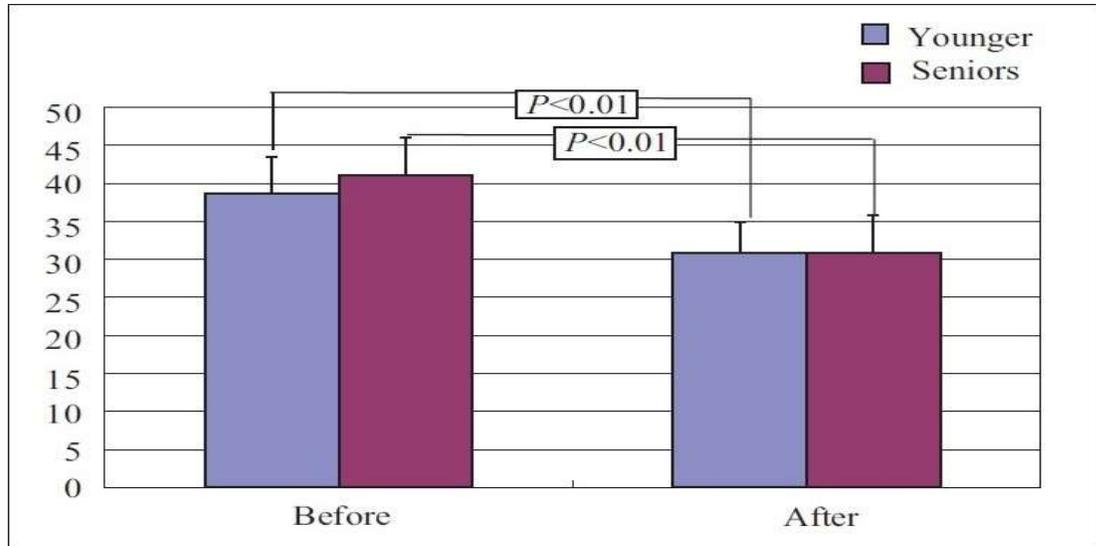
##### State anxiety

Score decreased from  $38.7\pm 4.8$  to  $30.8\pm 4.1$ . The change which occurred after yoga practice in present feeling was statistically significant.

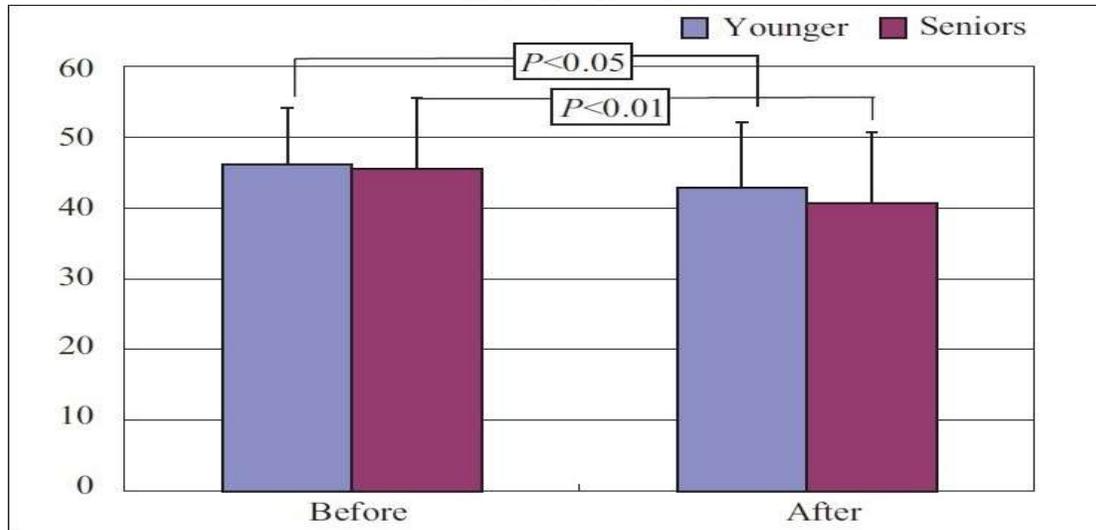
##### Trait anxiety

The score reduced from  $46.2\pm 7.9$  to  $42.9\pm 9.1$  with  $P<0.05$ , a significant change was observed

**FIGURE 1**  
**STATE ANXIETY SCORE BEFORE AND AFTER YOGA IN YOUNG AND SENIOR GROUPS**



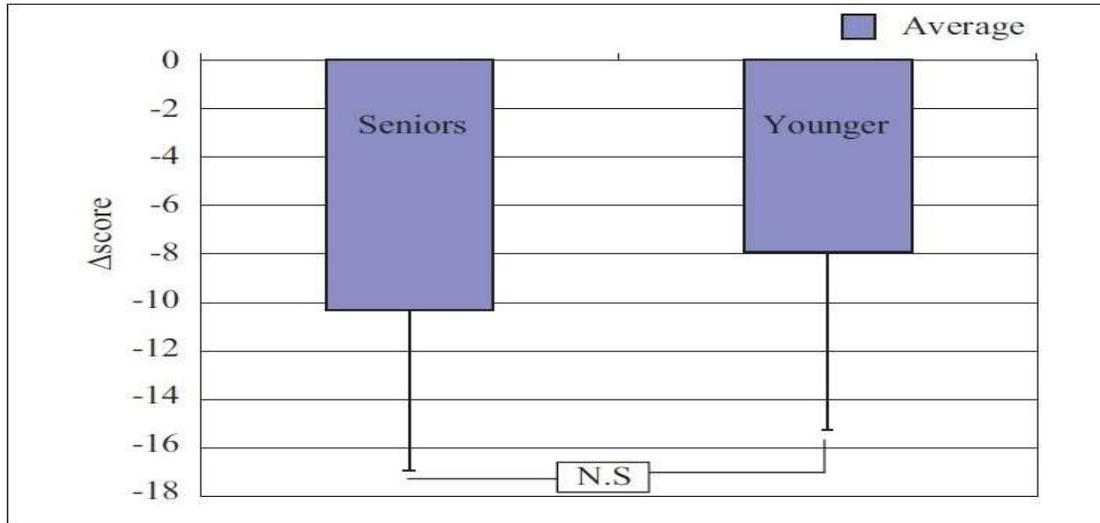
**FIGURE 2**  
**TRAIT ANXIETY SCORE BEFORE AND AFTER YOGA IN YOUNG AND SENIOR GROUPS**



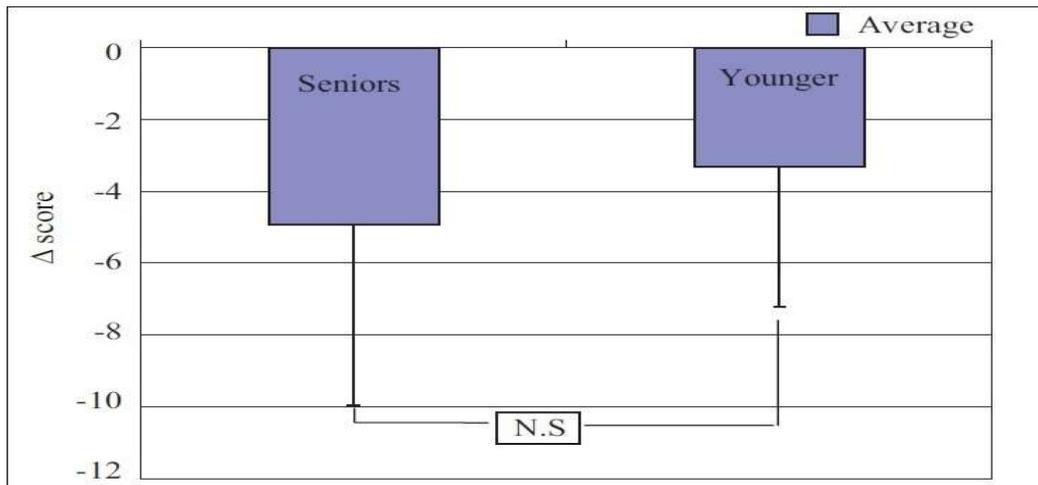
When the change in state anxiety was compared with that of trait anxiety the difference was significant. Response was more for state anxiety compared to trait anxiety.

When compared between the groups for any difference in response for state anxiety and trait anxiety, the result was not significant.

**FIGURE 3**  
**COMPARISON BETWEEN THE GROUPS: CHANGE IN**  
**STATE ANXIETY SCORE**



**FIGURE 4**  
**COMPARISON BETWEEN THE GROUPS: CHANGE IN**  
**TRAIT ANXIETY SCORE**



**DISCUSSION ON FINDINGS**

STAI was used as subjective criteria to assess the effect of yoga on mental health. Trait anxiety refers to relatively stable individual differences in anxiety-proneness, that is, differences between people in the tendency to perceive stressful situations as dangerous or threatening and to respond to such situations with elevation in the intensity of their state anxiety reactions. T-anxiety may also reflect individual differences in the frequency and intensity with which anxiety states have been manifested in the past, and in the probability that S-anxiety will be experienced in the future. The stronger the anxiety trait, the more probable that the individual will experience more intense elevations in S-anxiety in a threatening situation. Scores on the S-anxiety scale increase in response to physical danger and psychological stress.

Both state anxiety and trait anxiety scores decreased after yoga practice in both the groups. There was no difference in response between the groups. Both the young and seniors showed a decrease in their anxiety scores. Participants felt better and relaxed after practicing yoga. Response was more for state anxiety compared to trait anxiety. Thus yoga has both an immediate as well as long-term effect on anxiety reduction and helps to bring even behavior changes or controlled response to any type of stress if practiced

regularly. It has been observed that yoga-based relaxation technique decreases state anxiety more in comparison to supine rest. In one more study where yoga was a complementary treatment for depression, state anxiety score was decreased.

Mechanism of action according to Yoga: Asana gives controlled stretch to the muscles and improves the flexibility. Relaxing asanas like shavasana help to relax the body and mind. Pranayama helps to gain control over the breathing. According to yoga, by controlling the prana one can control the mind. By practicing asana, flow of prana becomes normal and by practicing pranayama one can control the prana. Even pranayama like Bhramari has a soothing effect on the mind. Later, by practicing meditation one can easily concentrate and relax. Chanting 'OM' helps to control the mind from different unwanted thoughts.

Lack of a control group may be considered as a limitation of this study but sufficient references about similar studies having control are provided so that the result of this study can be attributed to yoga.

**CONCLUSION**

Yoga helps to improve the mental health of both the young and seniors by reducing stress. Yoga can be wisely applied in welfare programs to improve the Quality of Life in all age groups.

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