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RESEARCH ARTICLE

Perception of stress among yoga trained individuals

Divya Bagya A[1], Ganesan T[1], Maheshkumar K[1], Venkateswaran S T[2], Padmavathi R[1]

1Department of Physiology, Sri Ramachandra Medical College and Research Institute, Chennai, Tamil Nadu, India, [2]Department of Yoga, Government Yoga and Naturopathy Medical College, Arumbakkam, Chennai, Tamil Nadu, India

Correspondence to: Divya Bagya A, E-mail: divyabagyaa@gmail.com

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ABSTRACT

Background: Yoga, originated thousands of years ago in India, is now well recognized as a form of mind-body medicine. Regular practice of yoga in the form of postures and breathing techniques stabilizes the autonomic nervous system with a tendency toward parasympathetic dominance and reduces the sympathetic arousal. **Aims and Objectives:** To assess the stress level among regular yoga practicing individuals. **Materials and Methods:** Regular yoga trained students (*n* - 90) were recruited from Government Yoga and Naturopathy Medical College, Arumbakkam, Chennai. Based on the duration of yoga practice, students were categorized into four groups: Group A (<10 months), Group B (10-20 months), Group C (20-40 months), and Group D (>40 months). Perceived stress scale (PSS) was administered for assessing stress level. **Results:** The students in Group C (10.37 ± 5.21) and Group D (11.00 ± 4.59) showed significantly ($P < 0.01$) less PSS score compared with other group yoga students. **Conclusion:** This study suggests that regular practice of yoga significantly reduces stress level among the practitioners, but further investigation into this relationship using large, well-defined population, adequate controls, randomization, and long duration should be explored before recommending yoga as a treatment option.

KEY WORDS: Yoga; Regular Practice; Stress; Perceived Stress Scale

INTRODUCTION

Stress may be defined as a psychophysiological process which is often experienced as a negative emotional state.[1] It usually occurs as a response to a physical threat or psychological distress that generates a series of chemical and hormonal reactions in the body and it could lead to serious health consequences if it is not identified early.[2] A chronic high-stress level can transform into range of ailments, including anxiety, depression, insomnia, muscle pain, high blood pressure, and a weakened immunesystem.[3] Evidences show that stress is the main factor for the development of many non-communicable diseases in the society such as hypertension, diabetes, insomnia, gastric ulcer, cancer, and stroke.[4] Several stress management programs such as meditation, yoga, hypnosis, imagery, and muscle relaxation have been introduced to overcome acute and chronic stress and prevent stress related disorders.[5] Mind-body interventions are gaining importance in the general population to assist with stress reduction in the recent years. Yoga is an ancient science established in India which gives the individual a healthy body and a sound mind.[6]

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The term "yoga" is derived from Sanskrit word "yuj" which means union (to join) and to focus and concentrate one's attention.[7] Regular practice of yoga promotes memory, concentration, attention, and improves characters such as friendliness, compassion, and brings about greater self-control in the individual along with a sense of calmness and well-being.[8,9] Continuous practice for years leads to important changes such as the way they look at their lives, the individual feels energized the whole day and starts enjoying

life to the fullest.[10] Yogic practice produces a physiological state of balance and union between the mind and body; opposite to that of the flight-or-fight stress response.[11]

It helps in improving mental capabilities such as attention, memory, learning efficiency, and positive attitude to life and thereby protects the individual by changing one's perception about stress and bringing a balance between mind and body.[12] Yoga is a good way to reduce stress because it tries to attain proper balance and healthy calmness to one's mind. Many studies have proved that yoga and meditation are useful in case of psychiatric and psychosomatic disorder such as stress, anxiety, depression, mental retardation, aggression, hyper tension, and diabetes.[13-15] In recent years, the awareness regarding yoga has increased and many clinical trials are being done to find its therapeutic effects and benefits. No studies are available to show stress levels among the regular yoga practicing peoples. Hence, we have done this study to compare the stress level among regular yoga practicing students using perceived stress scale (PSS) Questionnaire tool.

MATERIALS AND METHODS

The present study was carried out on ninety students of both sexes (male - 35, female - 55) with age between 18 and 25 years studying in Government Yoga and Naturopathy Medical College, Arumbakkam, Chennai. The study was approved by the Institutional Ethics Committee, and the signed informed consent was obtained from all the students. Students with major medical illness such as tuberculosis, thyroid disorders, bronchial asthma, and neuromuscular disorder were not included in the study. They do not have any history of major surgery in the recent past. Students with history of smoking and alcohol were excluded from the study. All the students have been practicing a structured yoga program daily for minimum of one hour and details are given in Table 1. Based on the duration of yoga practice they have been divided into Group A (<10 months), Group B (10-20 months), Group C (20-40 months), and Group D (>40 months).

Table 1: Details of the yoga practice

Yoga practices	Duration (min)
Joint exercises	5
Surya namaskar (5 rounds)	5
Asanas	30
Tadasana	
Artha chakrasana	
Padakasthasana	
Vajrasana	
Gomukasana	
Bujankhasana	
Shalabhasana	
Dhanurasan	
Pranayama	15
Nadi sudhi	
Kapalabhathi	
Bhastrika	
Sheetali	
Om chanting	5

Physiological Parameters

Physiological parameters such as pulse rate were measured by palpation method over the radial artery. Respiratory rate was recorded by observing abdominal wall movement in supine position after sufficient rest. Systolic blood pressure (SBP) and diastolic blood pressure (DBP) were measured by mercury sphygmomanometer (diamond) on left upper arm. Pulse pressure (PP = SBP − DBP), mean arterial pressure (MAP = DBP + 1/3 [PP]), and rate pressure product (RPP = heart rate × SBP) was calculated.

Psychological Assessment

The Cohen PSS is 10 item scale, each item is rated on a five-point scale ranging from never (0) to almost always (4). Positively worded items are reverse scored, and the ratings are summed, with higher scores indicating more perceived stress. Scores around 13 are considered average. Scores of 20 or higher are considered high stress.[16]

Statistical Analysis

Data were expressed in mean ± standard deviation. Statistical analysis was done using one way ANOVA following which *post hoc* test (Tukey honest significant difference) was done to compare mean between the groups using 'R' statistical software. Significant level was set as $P < 0.05$.

RESULTS

As per Table 2, HR in Group C (68.33 ± 9.35) and D (64.40 ± 5.30) was shown significantly less then Group A individuals. SBP (116.44 ± 8.29) and DBP (76.54 ± 8.38) among the Group C was comparatively low then the other group. PP (39.88 ± 4.32), MAP (89.85 ± 8.10) and RPP (8497.77 ± 714.92) also low then other groups. The students in Group C (10.37 ± 5.21) and Group D (11.00 ± 4.59) showed significantly ($P < 0.05$) less PSS score compared to Groups A and B yoga students. Thus, students practicing yoga for a longer duration have decreased stress levels compared to students of other groups.

DISCUSSION

The present study showed a significant reduction of perceived stress level among regular yoga practicing students, who practiced for longer periods. Stress modulates the activity of central nervous system and autonomic nervous system

Table 2: Resting cardiovascular parameters and PSS score among the study participants

Variables	Group A (<10 months) *n* - 24	Group B (10-20 months) *n* - 12	Group C (20-40 months) *n* - 45	Group D (>40 months) *n* - 8
Age (years)	18.54±0.72	17.50±3.06	19.08±1.17	20.37±1.30
HR (bpm)	73.04±8.85	71.11±6.83	68.33±9.35*	64.40±5.30*
SBP (mmHg)	121.25±2.21	120.83±6.68	116.44±8.29*$^{\#}$	119.37±6.23*
DBP (mmHg)	81.04±2.54	79.16±8.21*	76.54±8.38**$^{\#}$	77.56±5.34*
PP (mmHg)	40.20±1.02	41.66±5.36	39.88±4.32*	41.87±7.98
MAP (mmHg)	94.44±2.39	93.05±7.31	89.85±8.10*$^{\#}$	91.45±4.21*
RPP (mmHg)	8765.83±218.30	8752.50±535.19	8497.77±714.92**$^{\#}$	9448.75±1150.38
PSS score	13.87±4.02	14.08±4.92	10.37±5.21*$^{\#}$	11.00±4.59*$^{\#}$

*Compare with Group A, $^{\#}$Compare with Group B, *P<0.05, **P<0.01, $^{\#}P$<0.05, $^{\#\#}P$<0.01. HR: Heart rate, SBP: Systolic blood pressure, DBP: Diastolic blood pressure, PP: Pulse pressure, MAP: Mean arterial pressure, RPP: Rate pressure product, PSS: Perceived stress scale

in a manner so as to cope up with it and to get adapted to it. It may be environmental (external), emotional (internal), or sometimes a combination of both interacting with each other.[17] Previous studies have demonstrated that high levels of stress lead to inability to focus attention (hypervigilance) and the person arrives at a solution too quickly (premature closure).[18] Physical or psychological impairments will occur when stress become excessive or perceived negatively. Stress causes overloading on our mental and physical resources interfering with the effective use of our skills, and thus, affects the performance negatively.[17]

Currently, the treatment for anxiety and depression mostly includes psychological and pharmacological interventions; however, mind-body interventions are nowadays becoming popular as a means of reducing stress levels in individuals. Yoga, a form of mind-body medicine, offers a potent method to manage and reduce stress, anxiety, and depression thereby maintains wellness and alleviates a range of health problems and ailments.[19] Yoga should be considered as an alternative method or supplementary therapy in the treatment of stress, anxiety, depression, and other mood disorders as it shows to create a greater sense of well-being, better interpersonal relationships, lowers irritability, improves one's self-confidence and body image, improves efficiency, increases attentiveness, increases the feeling of relaxation, and encourages an optimistic outlook on life.[20]

To meet the modern lifestyle which is full of stress, challenges and tension; a complete personality development has become inevitable. Yoga provides the aspect of detachment and relaxation which is found lacking in our education process and this is the new dimension that needs to be added to the syllabus. Thus, yoga can be beneficial in achieving relaxation of mind during routine activities and also providing the concentration and arousal essential in stressful conditions. While there are no fixed guidelines describing the frequency of practice, the more you practice, the more you get benefited. Yoga cannot be generalized; the frequency and duration of practice varies from individual-to-individual. Practice should be managed wisely to meet individual needs and goals. At the initial period, individuals should practice frequently. The duration of the induction phase varies depending on the individual's health status and initial level of fitness; when yoga is more difficult for someone in the beginning means that their body needs it more. The awareness that yoga promotes personal growth, health, and well-being is increasing in the new era. Mind-body fitness programs, especially yoga helps in the unity of mind, body and spirit, and therefore is capable of assisting people to pursue peace, calmness, wholeness, and integration in their lives. Thus, yoga has the potential to become important component of a personal wellness plan.

CONCLUSION

Today's generation requires a creative and interactive syllabus which should include participation in the teaching-learning process. This approach is applicable for learning yoga too. Thus, if we can incorporate yoga in the syllabus effectively, students can adopt yoga as a powerful tool for themselves to minimize stress levels and achieve betterment in their lives.

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