

Effect of Yoga (Pranayam) on Stress among Undergraduate Students

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ABSTRACT

The present study was conducted with the aim to find out the effect of yoga (Pranayam) on stress among undergraduate students, C.M.P. Degree College, University of Allahabad, Prayagraj. **Sheldon Cohen (1994) Perceived Stress Scale was used to measure perceived stress.** The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. The demographic variables comprised 3 items such as age, gender and class of participants. The study was conducted on a sample of 9 participants, 6 were male and 3 were female undergraduate student. The data have been collected among undergraduate student, C.M.P. Degree College, University of Allahabad, Prayagraj and analyzed by using SPSS 16 software. Results showed that out of total 9 participants, 8 participants perceived stress score was *decrease* after Pranayam training. Results also showed that there were significant differences in perceived stress score before and after **Pranayama** training ($t=2.64$; $p<.05$). The participants mean score of perceived stress score by before and after Pranayam was 23.44 and 19.88 respectively. It was also observed that perceived stress score was decrease after Pranayam training. In Conclusion, Yoga (Pranayam) helps to reduce stress among undergraduate students.

Keywords:

Yoga (Pranayam), Stress

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INTRODUCTION

Yoga: Yoga is an art form which helps in attaining good health and is for living a holistic life. It has been developed and perfected over the centuries by the sages and wise men of ancient India. Yoga is not a religion, a metaphysical doctrine or a philosophy. It can make amazing improvement in our health, appearance and youthfulness. Yoga has many benefits for both mind and body. Yogic exercise can be done by any age group and even by the most unfit people. Yoga is also the most comprehensive of all exercises as it benefits each part of the body.

The term yoga is derived from the Sanskrit root "yug" meaning union Yoke or communion; it is union of our will with the nature and the supernatural. It is yoking of all the powers of the

body, mind and soul. The disciplining the intellect the mind, the emotions and the will, It is the experience of on self with one's inner being.

The central methods of yoga are physical postures or 'asana' and movement breathing techniques or 'pranayams' and meditation yoga includes guidance on healthy life styles eating habits mental attitudes and ayurvedic medicines is also part of the yogic path to health and balance.

The **physical benefits** of Yoga are well known, but the mental **benefits** are just as important **like** calm and clarity, greater confidence and generally more positive mood, sense of inner well being and centeredness, increase awareness of body and movement, ability to concentrate improves, more self-acceptance and increased social skills

Pranayama: The science of Pranayam was developed by highly evolved yogis through an intuitive and experiential understanding of prana and its influence on the human mechanism at various levels. The agency of the breath was used to access the pranic field, to attain balance in the body and control of the mind. The practices would render the body-mind instrument capable of experiencing higher states of consciousness so that the ultimate union with the transcendental reality could be experienced.

The breath being the medium of pranayama, the system is based on the three stages of respiration: inhalation (*pooraka*) retention (*kumbhaka*) and exhalation (*rechaka*). By permuting and directing these three stages, the different practices of pranayama are obtained.

The practice of yoga, in fact, begins when we come to the pranayama series. With the practice of asanas, we arrive at the state where we are able to work with the energies controlling the body. With Pranayam, through the breath, we develop an awareness of the subtle force within the body, and directing the mind to become aware of the subtle activities is the beginning of yoga actually only retention.

There are three types of Pranayama, viz., Adhama, Madhyama and Uttama (inferior, middle and superior). The Adhama Pranayama consists of 12 Matras, Madhyama consists of 24 Matras and the Uttama occupies a time of 32 Matras. This is for Puraka. The ratio between Puraka, Kumbhaka and Rechaka is 1:4:2. Puraka is inhalation. Kumbhaka is retention. Rechaka is exhalation. If you inhale for a period of 12 Matras you will have to make Kumbhaka for a period of 48 Matras. Then the time for Rechaka will be 24 Matras. This is for Adhama Pranayama. The same rule will apply to the other two varieties. First, practise for a month of Adhama Pranayama. Then practise Madhyama for three months. Then take up the Uttama variety.

Deep Breathing Exercise: Each deep breathing consists of a very full inhalation, through the nose

and a deep, steady exhalation also, through the nose.

Inhale slowly as much as you can do. Exhale slowly as much as you can do. During inhalation, observe the following rules:

- 1) Stand up. Place the hands on the hips, the elbows will be out and not forced backward. Stand at ease.
- 2) Lengthen the chest straight upwards. Press the hip bones with the hands in downward direction. A vacuum will be formed by this act and the air will rush in of its own accord.
- 3) Keep the nostrils wide open. Do not use the nose as a suction pump. It should serve as a passive passage for both the inhaled and the exhaled air. Do not make any sound when you inhale and exhale. Remember that correct breathing is noiseless.

We all know that stress is not good for us but did you know that stress accounts for between 60% and 80% of visits to primary care doctors?

Pranayam (yoga breathing techniques) meditation and deep relaxation can slow the harmful physical effect of stress and inflammaging.

Stress: Everyone feels stressed from time to time. Routine stress related to the pressures of work, family, and other daily responsibilities. Stress brought about by a sudden negative change, such as losing a job, divorce, or illness. Traumatic stress, which happens when you are in danger of being seriously hurt or killed, such as major accident, war, assault, or a natural disaster. This type of stress can cause post-traumatic stress disorder (PTSD). Stress is a feeling of emotional or physical tension. It can come from any event or thought that makes you feel frustrated, angry, or nervous. Stress is your body's reaction to a challenge or demand. In short bursts, stress can be positive, such as when it helps you avoid danger or meet a deadline. But when stress lasts for a long time, it may harm your health. Stress is a normal feeling.

There are two main types of stress:

- 1) **Acute stress.** This is short-term stress that goes away quickly. You feel it when you slam on the brakes, have a fight with your partner, or ski down a steep slope. It helps you manage dangerous situations. It also occurs when you do something new or exciting. All people have acute stress at one time or another.
- 2) **Chronic stress.** This is stress that lasts for a longer period of time. You may have chronic stress if you have money problems, an unhappy marriage, or trouble at work. Any type of stress that goes on for weeks or months is chronic stress. You can become so used to chronic stress that you don't realize it is a problem. If you don't find ways to manage stress, it may lead to health problems.

Signs of too much stress: Stress can cause many types of physical and emotional symptoms. Sometimes, you may not realize these symptoms are caused by stress. Here are some signs that stress may be affecting you: Diarrhea or constipation, forgetfulness, frequent aches and pains, headaches, lack of energy or focus, Sexual problems, Stiff jaw or neck, tiredness, trouble sleeping or sleeping too much, upset stomach, use of alcohol or drugs to relax, weight loss or gain.

Yoga (Pranayam) and Stress

A review of the literature follows, which will further help us understand the present status better. A large number of studies related Yoga (Pranayam) on stress.

Joshi, Joshi & Gokhala (1992), who reported that Pranayama leads to increase in breathe holding time and decrease respiration rate. It is also believed that practice of Kumbhaka [Breath retention] in the most of Pranayama enhance concentration & reduce anxiety.

Udupa (1985) carried out research on patients of stress related disorders like hypertension, cardiovascular disorders, asthma, hypothyroidism and found beneficial effects of some yogic practices taught to these patients. Positive effects of some yogic practices on stress related problems and their reduction has been shown by many other studies too (Udupa, 1985; Nagendra, 1988).

Sharma, Yadav and Hooda (2005), have found that the comparison of the pre-post measures of psychological functioning (i.e. state anxiety & concentration) after the short term Yoga training programme showed positive impact of Yoga on state anxiety & concentration. This revealed that ten day Yoga workshop helped in reducing state anxiety i.e. reduction in responsiveness to anxiety.

Assessments of anxiety levels after a brief life style modification education program based on the principle of Yoga have shown reduction in anxiety levels (Gupta, Khera, Vempati, Sharma & Bijlani, 2006). Another study conducted on 38 patients revealed that state anxiety in males 99 and trait anxiety in females was reduced by intervention i.e. Yoga (Singh, Vempati, Sharma, Yadav & Bijlani, 2003).

In an important study by Sahasi, Mohan & Kacker (1989) studied two groups of patients one by yogic practices & the other by drug therapy. In former group (yogic practices) anxiety level decreased & concentration & attention increased. While in the later group (drug therapy) there was no statistically significant difference on other tests except locus of control.

Schulte and Abhyanker (1979) revealed the study of 35 years old Indian widow with no prior history of depression that entered a yogic Institute because of depressive episode one year following the premature death of her husband. After twelve weeks of a yogic breathing regiment, she had remission of her symptoms. She remained symptom free even up to a two-year follow-up.

One successful comprehensive treatment for chronic pain has been originated by Clare Philips (1987). This program contains many of the same components found in general stress-reduction programs such as relaxation and cognitive therapy focused on developing new approaches and attitudes toward pain. After a 9-week treatment program for chronic pain, 12.6% of the treatment groups were entirely free of pain, 41.8% were much improved, and 38% were improved. Only 8% were in need of further treatment. Also pain intensity gradually decreased over the 12-month follow-up.

Woolery, Myers, Sternlieb and Zelter (2004) examined the effects of a short-term Iyengar Yoga course on mood in mildly depressed young adults. Twenty-eight volunteers aged 18 to 29. An intake, all participants were experiencing mild levels of depression, but had received no current psychiatric diagnosis or treatments. None had significant Yoga experience. Subjects in the Yoga group attended two 1-hour Iyengar Yoga classes each week for 5 consecutive weeks. The classes emphasized Yoga postures thought to alleviate depression, particularly back bends, standing poses, and inversions. The results show that subjects who participated in the Yoga course demonstrated significant decreases in self-reported symptoms of depression and trait anxiety. These effects emerged by the middle of the Yoga course and were maintained by the end. Changes also were observed in acute mood, with subjects reporting decreased levels of negative mood and fatigue following Yoga classes. Finally, there was a trend for higher morning cortisol levels in the Yoga group by the end of the Yoga course, compared to controls. These findings provide suggestive evidence of the utility of Yoga asanas in improving mood. Yardi (2001) viewed that Yoga alleviates stress, induces relaxation and provides multiple health benefits to practitioners.

In conclusion researches in medical field have reported that Pranayama techniques are beneficial

in treating a range of stress related disorders, improving autonomic functions, relieving symptoms of asthma, and reducing signs of oxidative stress

Objectives of the study

The study was aimed to find out the effect of yoga (Pranayam) on stress seen among undergraduate students.

Hypothesis

There will be a significant difference in the level of stress among undergraduate students, before and after Yoga (Pranayama).

METHODOLOGY

This section consists of research design, variables, setting, population and sample, sampling technique, description of tool, reliability and validity of tool, data collection procedure and plan for data analysis.

Research Design

Quasi experimental design (one group pre test post test) was adopted for this study to determine the effectiveness of Yoga (Pranayama) on stress.

O1 X O2

O1: Pre test (level of stress before intervention)

X: Intervention (Pranayama)

O2: Post test (level of stress after intervention)

Population

The population of the study included the entire undergraduate student, C.M.P. Degree College, University of Allahabad, Prayagraj.

Sample

The study was conducted on a sample of approximately 9 undergraduate students, C.M.P. Degree College, University of Allahabad, Prayagraj.

Variables:

Independent Variable-Pranayama,

Dependent Variables: Level of Stress (low stress, moderate stress and high stress)

Measuring Instruments The following instruments will be utilized to measure the variables under study:

Demographic Variables: The demographic variables comprised 3 items such as age, gender and class of participants.

Perceived Stress Scale (Sheldon Cohen, 1994):

The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives. The scale also includes a number of direct queries about current levels of experienced stress. The PSS was designed for use in community samples with at least a junior high school education. The items are easy to understand, and the response alternatives are simple to grasp. Moreover, the questions are of a general nature and hence are relatively free of content specific to any subpopulation group. The questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way. Cronbach's Alpha coefficient reported by Cohen 0.72. The scale consists of 10 items. The items are written in 0 to 4 point scale (0=never and 4=very often). Possible perceived stress scale

score ranged from 0 to 40. In which 0-13 would be considered low stress, 14-26 would be considered moderate stress and 27-40 would be considered high perceived stress.

Procedure

The study was conducted on the undergraduate student, C.M.P. Degree College, University of Allahabad, Prayagraj from 03/01/2020 to 18/01/2020. In the beginning survey was done from which samples were selected by simple random sampling technique based on sampling criteria. Introduction about investigator was given to samples. Verbal consent was obtained and confidentiality was assured. The pre test was conducted on 03/01/2020. Researcher selected 9 students through simple random sampling technique. Perceived Stress Scale (PSS) was used to assess the level of stress among undergraduate student, C.M.P. Degree College, University of Allahabad, Prayagraj. The students were asked to choose the correct response from the given options. After the pre test samples were taught about Pranayama in a calm and quite environment. The duration of the procedure was 30 minutes. The students were made to practice the Pranayama daily at home. Each day the students were made to practice Pranayama at their home. The post test was done on the 15th day of intervention (18/01/2020).

RESULTS

Statistical analysis of the data was done through the computation of t-test for examining the differences in the perceptions of stress (pre test and post test) to see the Effectiveness of Yoga (Pranayama) on stress among undergraduate student, C.M.P. Degree College, University of Allahabad, Prayagraj by using SPSS 16 software.

Out of total 9 participants, 6 were male and 3 were female undergraduate student.

Participant 1: Participant 1 perceived stress score, before and after Pranayam was 32 (High Stress) and 19 (Moderate Stress) respectively. It was also observed that perceived stress score was *decrease* after Pranayam training.

Participant 2: Participant 2 perceived stress score, before and after Pranayam was 23 (Moderate Stress) and 20 (Moderate Stress) respectively. It was also observed that perceived stress score was *decrease* after Pranayam training.

Participant 3: Participant 3 perceived stress score, before and after Pranayam was 23 (Moderate Stress) and 21 (Moderate Stress) respectively. It was also observed that perceived stress score was *decrease* after Pranayam training.

Participant 4: Participant 4 perceived stress score, before and after Pranayam was 19 (Moderate Stress) and 15 (Moderate Stress) respectively. It was also observed that perceived stress score was *decrease* after Pranayam training.

Table-1. Shows Pre and Post Perceived Stress Score and their Interpretation

Participant Id	Stress (Pre Total)	Interpretation	Treatment X (Pranayama)	Stress (Post Total)	Interpretation
1.	32	High Stress	X(Pranayama)	19	Moderate Stress
2.	23	Moderate Stress	X(Pranayama)	20	Moderate Stress
3.	23	Moderate Stress	X(Pranayama)	21	Moderate Stress
4.	19	Moderate Stress	X(Pranayama)	15	Moderate Stress
5.	16	Moderate Stress	X(Pranayama)	15	Moderate Stress
6.	21	Moderate Stress	X(Pranayama)	18	Moderate Stress
7.	24	Moderate Stress	X(Pranayama)	20	Moderate Stress
8.	29	High Stress	X(Pranayama)	25	Moderate Stress
9.	24	Moderate Stress	X(Pranayama)	26	Moderate Stress

Participant 5: Participant 5 perceived stress score, before and after Pranayam was 16 (Moderate Stress) and 15 (Moderate Stress) respectively. It was also observed that perceived stress score was *decrease* after Pranayam training.

Participant 6: Participant 6 perceived stress score, before and after Pranayam was 21 (Moderate Stress) and 18 (Moderate Stress) respectively. It was also observed that perceived stress score was *decrease* after Pranayam training.

Participant 7: Participant 7 perceived stress score, before and after Pranayam was 24 (Moderate Stress) and 20 (Moderate Stress) respectively. It was also observed that perceived stress score was *decrease* after Pranayam training.

Participant 8: Participant 8 perceived stress score, before and after Pranayam was 29 (High Stress) and 25 (Moderate Stress) respectively. It was also observed that perceived stress score was *decrease* after Pranayam training.

Participant 9: Participant 9 perceived stress score, before and after Pranayam was 24 (Moderate Stress) and 26 (Moderate Stress) respectively. It was also observed that perceived stress score was *increase* after Pranayam training.

Finally, it was observed that out of total 9 participants, 8 participants perceived stress score was *decrease* after Pranayam training.

Table 2: Shows the Comparison of Perceived Stress among Undergraduate Students Before and After Pranayama

Perceived Stress Score Before Pranayam (Mean)	S.D.	Perceived Stress Score After Pranayam (Mean)	S.D.	't' Value
23.44	4.82	19.88	3.82	2.64*

**p< .01 level, *p<.05 level (2-tailed test)

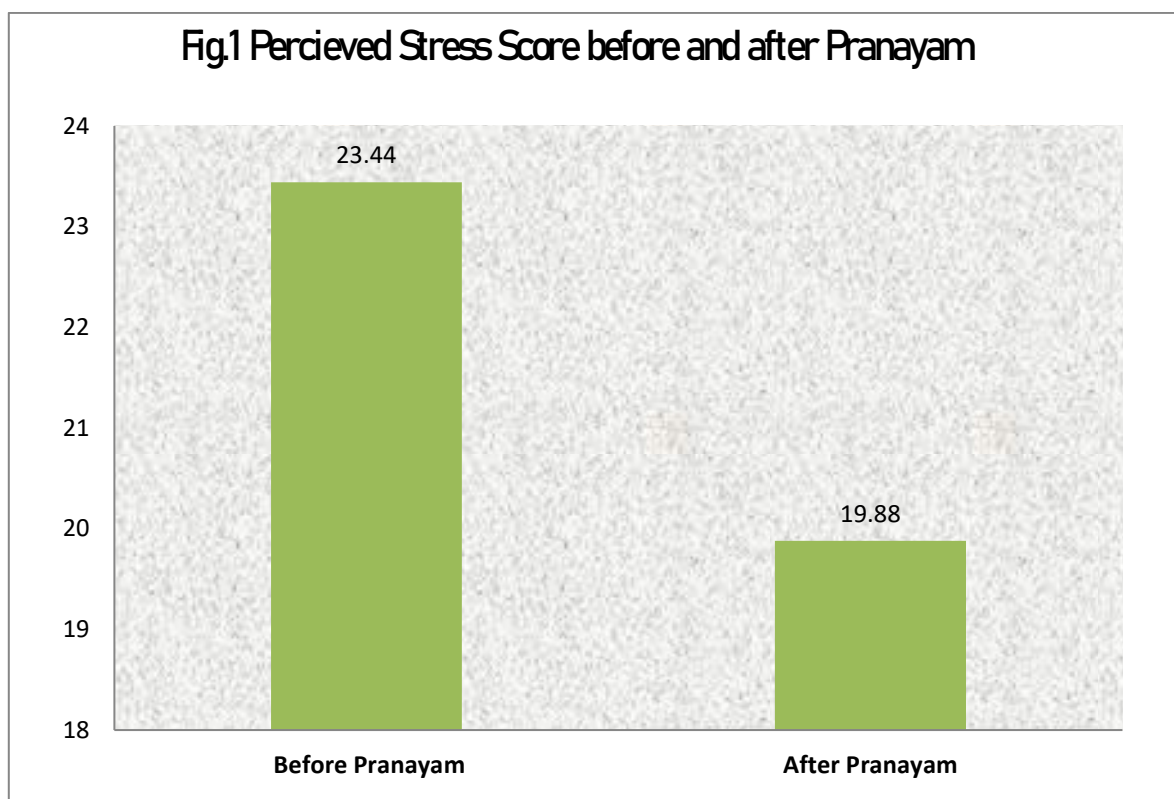


Table 2 shows that there were significant differences in perceived stress score ($t=2.64$;

$p<.05$) before and after **Pranayama** training ($p<0.05$) which is graphically presented in fig. 1.

The participants mean score of perceived stress score by before and after Pranayam was 23.44 and 19.88 respectively. It was also observed that perceived stress score was decrease after Pranayam training. Hence, the results of t-test by before and after Pranayam training among undergraduate student, C.M.P. Degree College, University of Allahabad, Prayagraj totally supported the **hypothesis 1** which postulates that *there will be a significant difference in the level of stress among undergraduate students, before and after Yoga (Pranayama) training.*

DISCUSSION

It is clearly observed from table-2 and figure-1 that significant decrease in perceived stress scores among undergraduate student, C.M.P. Degree College, University of Allahabad, Prayagraj, after practicing yoga (*Pranayama*) training. This clearly demonstrates the beneficial effects of yoga (*Pranayama*) training on perceived stress among undergraduate student. It is clearly observed from table-1 that out of total 9 participants, 8 participants perceived stress score was decrease after Pranayam training. The results of the survey revealed that Yoga (*Pranayama*) have proved to be a blessing for the people suffering with perceived stress even in the present modern world.

Swami Ramdev, Yoga synergy in medical science, (2007) revealed that Yoga and Pranayama are not merely physical exercises but they strongly influence our consciousness. Yoga and Pranayama have a direct positive impact on our thinking. Yoga and Pranayama have also led to lot of reduction in stress levels. The present life style and stress has adversely affected memory power of lot of people and they also got a chance to rejuvenate after coming into the shelter of Yoga.

Sahajpal and Ralte (2000) found in his study that Induced Yogic Relaxation Training (IYRT) have shown very beneficial effects on quality of sleep, reduction in stress level & improvement in self concept. Aminabhavi (1996) found in his study

that training course in Yoga was found to have led to highly significant improvement in the subjects' mental health. Yogic meditation was also effective in reducing tension headache (Vasudevan, Mishra & Balodi, 1994).

Udupa (1985) carried out research on patients of stress related disorders like hypertension, cardiovascular disorders, asthma, hypothyroidism and found beneficial effects of some yogic practices taught to these patients. Positive effects of some yogic practices on stress related problems and their reduction has been shown by many other studies too (Udupa, 1985). Similar type of results suggested that by yoga therapy group subjects have not only benefited psychologically but their physiological responses also improved. The change in outlook in perceiving day-to-day problems, effectively dealing with them may be attributed to the yoga training. On the other hand control group subjects showed no such improvement. Actually they reported more symptoms, didn't show any reduction in stress perceptions and their coping responses were not adaptive.

From the above discussion it may be concluded that there is a positive effect of Yoga (*Pranayama*) on perceived stress. Yoga (*Pranayama*) has proved to be a blessing for the people suffering with perceived stress even in the present modern world.

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