



EVALUATION OF EFFECTIVENESS OF FIVE POINT SYSTEM OF YOGA ON STRESS REDUCTION AMONG DIFFERENT AGE GROUPS

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ABSTRACT

Stress has been indicated as contributors to many chronic diseases and to decreased quality of life, even with pharmacologic treatment. Efforts are underway to find non-pharmacologic therapies to relieve stress, and yoga is one option, for which results are promising. Yoga is a complete science, as it fulfils the WHO's definition of health by addressing the individual at all physical, psychological and social levels. The study is aimed at reducing stress among different age groups with the help of five point system of yoga described by Swami Vishnudevananda, selected yoga asanas, anuloma-viloma, kapala-bhatipranayamas, and deep relaxation techniques. The study design selected are pre and post interventional type and a sample of 42 subjects, by purposive sampling were selected at random, with the help of Combined and modified ISMA Questionnaire and COHENS perceived stress scale. Stress scores were assessed before and after the study. Selected asanas, pranayamas and deep relaxation technique were adopted for a study period of 6 weeks. After testing the hypothesis, using paired 't' test and Wilcoxon's signed rank test, it was found that there was a significant reduction in the stress score with a 'p' value of <0.001. Thus the selected yoga techniques help in reversing the progress of stress and improve the resistance of the body at the psycho-physiological level and help to maintain an alert mental health. Though recently, innumerable tranquilizing agents or sedatives, anti-depressants and beta-blockers have been discovered and marketed, most of them have side effects and habit forming properties. When these medicines are taken regularly, it may lead to physical dependence and tolerance with increasingly higher dose needed to get same anxiety relief as before. Some may experience drowsiness, weight gain, sleepiness, nausea or vomiting tendency, memory problems, headache, confusions, blurred vision, etc. Therefore non-medical and economic measures like yoga therapies could be adopted to pacify this stressful situation and to maintain an alert mental health. Further studies to ascertain yoga's long term effects and the underlying biological mechanisms leading to stress reduction effect should be conducted.

KEY WORDS: *Five point system of Yoga, Stress, ISMA Questionnaire and COHENS perceived stress scale.*

INTRODUCTION

The conceptual background of yoga has its origins in ancient Indian philosophy. There are numerous modern schools or types of yoga (i.e., Iyengar, Viniyoga, Sivananda, etc.), each having its own distinct emphasis regarding the relative content of physical postures and exercises (asanas), breathing techniques (pranayama), deep relaxation, and meditation practices that cultivate awareness and ultimately more profound states of consciousness. The application of yoga as a therapeutic intervention, which began early in the twentieth century,

takes advantage of the various psycho-physiological benefits of the component practices. The physical exercises (asanas) may increase patient's physical flexibility, coordination, and strength, while the breathing practices and meditation may calm and focus the mind to develop greater awareness and diminish anxiety (Kirkwood et.al, 2005), and thus result in higher quality of life. Other beneficial effects might involve a reduction of distress, blood pressure, and improvements in resilience, mood, and metabolic regulation

(K. Yang, 2007).

The widely accepted definition of health given by the World Health Organisation (WHO) is that “Health is a state of complete physical, mental and social well-being and not merely absence of disease or infirmity (K. Park 2015). Mental health is a major concern worldwide. Dr. Brock Chisholm, the first Director-General of the World Health Organisation (WHO), in 1954, had precisely declared that “without mental health there can be no true physical health” (Kolappa.K. 2013). Hans Hugo Bruno Selye first introduced the term 'Stress'. He is known as the 'Father of Stress'. He observed that patients with a variety of illnesses had many of the same 'non-specific' symptoms that were a common response to stressful stimuli experienced by the body. These clinical observations together with experiments on laboratory rats, he drew up the first complete theory of medical stress. For Selye, stress was indeed “a non-specific response of the body to any demand that was made on it”. He named this response “general adaptation syndrome”, and identified three stages - alarm, resistance and exhaustion. The first stage corresponds to the full set of responses by the organism to a sudden disturbance, and the second to the responses set up in the event of a lasting disturbance. As for the exhaustion stage, this occurs when the body is no longer able to adapt. This is followed by the numerous complications of stress, frequently characterised by inflammatory diseases. (Fink, G., 2017)

Stress has been dubbed as the “Health Epidemic of 21st century” by the World Health Organisation. The effect of stress on our emotional and physical health can be devastating. In addition to damaging performance, stress can also have a negative effect on mental health and increases the risk of depression, anxiety and burnout (Oscar, 2018). The term stress is derived from the Latin word ‘Stringere,’ which means to be drawn tight (Arnold, J. et al., 2005)

The physical, environmental and social causes of stress are termed as stressors. Stressors may be divided into several groups based upon their character, duration and intensity (Bhuvaneshwari.K., 2011). According to Richard S Lazarus, a psychologist, who was well renowned for his cognitive-meditational theory within emotion, explained stress into two-eustress and distress (Mentalhelp.net, 2019). If the stressors produce adaptive response and the individual benefits from it through increased well being, then it is called as eustress. It is experienced while involving in entertainments, sports, sex and hobbies. (Kumar.D., 2015) If the stress causes maladaptive responses and yields decreased well being, then it is called distress. It is a stressful situation that occurs without our control and continues for more time or occurs repeatedly and causes discomfort to the organs or mind. It causes anxiety or concern, can be short or long term, is perceived as outside of our coping abilities, decrease performance and can lead to mental and physical problems. (MentalHelp.net, 2019)

The signs and symptoms of stress can be categorised under four headings: Emotional, Physical, Cognitive and Behavioural Emotional-Depression or general unhappiness, anxiety and agitation, moodiness, irritability or anger, feel of overwhelmed, loneliness and isolation and other emotional health problems. Physical-Aches and pains, Diarrhoea or constipation, Nausea, dizziness, chest pain, rapid heart rate, loss of sex drive, frequent colds or flu. Cognitive-Memory problems, Inability to concentrate, Poor judgement, Seeing only the negative, Anxious or racing thoughts, Constant worrying. Behavioural- Eating more or less, Sleeping too much or too little, withdrawing from others, procrastination or neglecting responsibilities, Using alcohol, cigarettes or drugs to relax, Nervous habits (eg. nail biting, pacing etc) (Help Guide.org, 2019).

Stress is a silent killer, and prolonged exposure to stress may exert harmful effects on physical, psychological, and behavioural well-being of an individual. When a person is exposed to intensive, repeated or prolonged stress reaction, the vulnerable organ get affected adversely. When these organs are exposed to an excessive work load, the efficiency will be deteriorated. Initially, there will be some disturbances in mind like restlessness, irritability, anxiety, fear, insomnia etc. Gradually these disturbances further sustain, the organs are affected. In turn, this will manifest diseases like Asthma, Coronary Heart disease, Diabetes Mellitus, Migraine, Thyrotoxicosis, Arthritis and so on (Kumar.D., 2015).

According to American Psychological Association, stress by generation, White Millennials (ages 18 to 33) and Gen Xers (ages 34 to 47) report the highest average stress levels. Boomers (ages 48 to 66) and Matures (ages 67 years and older) join them in reporting levels that are higher than they consider healthy (American Psychological Association, 2019). Men and women report different reactions to stress, both physically and mentally. They attempt to manage stress in very different ways and also perceive their ability to do so- and the things that stand in

their way - in markedly different ways. Findings suggest that while women are more likely to report physical symptoms associated with stress, they are doing a better job connecting with others in their lives and, at times, these connections are important to their stress management strategies (American Psychological Association, 2010).

Stress is a part of life, and one can't always avoid it. But one can try to avoid situations that can cause it, and can control how to respond to it. According to the Anxiety and Depression Association of America (ADAA), exercise and other physical activities can help relieve stress by releasing endorphins, which are natural painkillers. (Anxiety And Depression Association Of America, 201)

RESEARCH AND METHODOLOGY

A randomised selection trial was undertaken, carried out at Sivananda Yoga Vedanta Centre at Neyyar dam and Sivananda Yoga Centre at Thiruvananthapuram. Subjects were eligible to participate, if they were, aged between 18 and 65 years, experiencing mild or moderate levels of stress, determined by Combined and Modified ISMA (International Stress Management Association) and Cohen’s perceived stress questionnaire and able to attend and participate in the classes, 2019-2020. Subjects were excluded if pregnant or lactating, those diagnosed with systemic illness and psychiatric illness. Consent was obtained on initial contact. Subjects were selected from two sites. Half of the group from Sivananda Yoga Vedanta Ashram where they resort to yogic way of

living and 4 hours of practice. Rest of the group from Sivananda Yoga and community centre, where the subjects are engaged in normal life with a yoga practice of 2 hours daily.

YOGA INTERVENTION:

Hatha yoga was chosen as the style of yoga for the study, as proposed by Swami Vishnudevananda and consultation with key leaders in the yoga community.

The five point system of yoga as explained by Swami Vishnudevananda depict the five points: 1. Proper exercise 2. Proper Breathing 3. Proper Relaxation 4. Proper Diet 5. Positive Thinking and Meditation.

(Vishnudevananda.S,1988)

TABLE 1 :(Vishnudevananda.S.,1988)

Initial Relaxation (5 minutes)

Initial prayer

Pranayama- Breathing exercises

1. Kapalabhati(3 rounds)
2. Anulomaviloma(5-10 rounds, proportion 4:16:8)

Warm-up exercises:

Surya namaskara(Sun Salutation;6-12)

Single Leg Raises(3 times each)

Double Leg Raises(6-12 times)

12 Basic Postures:

1. Sirshasana (Head stand)
2. Sarvangasana(Shoulder stand)
3. Halasana(Plough)
4. Matsyasana(Fish)
5. Paschimothanasana(Forward bend)
6. Bhujangasana(Cobra)
7. Salabhasana(Locust)
8. Dhanurasana(Bow)
9. ArdhaMatsyendrasana(Half Spinal Twist)
- 10.Kakasana(Crow) or Mayurasana(Peacock)
11. PadaHasthasana(Standing Forward Bend)
12. Trikonasana(Triangle)

Final Relaxation (10 minutes)

Final Prayers.



STUDY TOOL:

Combined and Modified ISMA Questionnaire and COHENS perceived stress questionnaire was used in the study. Subjects were asked to fill up the questionnaire before and after the intervention.

The intervention lasted ten sessions. At the end of tenth session, questionnaire was completed by each subject.

TABLE 2: Combined and modified ISMA and COHEN'S perceived stress scale

SI No.	Question	Never	Almost Never	Some times	Fairly Often	Very Often
1.	Do you feel confidence about your ability to handle personal problem ?	4	3	2	1	0
2.	Do you feel frustrated ?	0	1	2	3	4
3.	Does your problems seems to be piling-up ?	0	1	2	3	4
4.	Do you feel relaxed if you relax or do nothing ?	4	3	2	1	0
5.	Do you get upset easily ?	0	1	2	3	4
6.	Do you have less desire for food ?	0	1	2	3	4
7.	Do you feel tired even you wake up after a good sleep ?	0	1	2	3	4
8.	Do you think about your problems while supposed to be relaxing ?	0	1	2	3	4
9.	Do you experience any difficulty in making decisions ?	0	1	2	3	4
10.	Are you mentally exhausted ?	0	1	2	3	4
11.	Do you have enough time for your interests?	4	3	2	1	0
12.	Do you have an impaired memory ?	0	1	2	3	4
13.	Do you feel mood swings ?	0	1	2	3	4
14.	Do you have any changes in your menstrual cycle ?	0	1	2	3	4
15.	Do you grind your teeth ?	0	1	2	3	4
16.	Do you feel you are having low sex drive ?	0	1	2	3	4
17.	Do you feel pain in neck, shoulders etc ?	0	1	2	3	4
18.	Do you eat/walk/talk quickly ?	0	1	2	3	4
19.	Do you feel lonely or isolated ?	0	1	2	3	4
20.	Do you criticize others / find fault in others ?	0	1	2	3	4
21.	Do you feel that you are doing things you really like ?	4	3	2	1	0
22.	Do you feel criticised or judged ?	0	1	2	3	4
23.	Do you feel that you are doing things because you have to do that ?	0	1	2	3	4
24.	Do you complain that hours in a day is not enough for work ?	0	1	2	3	4
25.	Do you feel calm ?	4	3	2	1	0

26.	Do you ignore problems in the hope that they will go away ?	4	3	2	1	0
27.	Do you pretend that you are listening even-though you are preoccupied with your thoughts ?	0	1	2	3	4
28.	Do you feel that too many demands are made on you ?	0	1	2	3	4
29.	Do you feel safe or protected ?	4	3	2	1	0
30.	Are you light hearted ?	4	3	2	1	0
31.	Are you afraid of your future ?	0	1	2	3	4
32.	Do you feel that you have full of energy ?	4	3	2	1	0
33.	Do you feel any difficulty in concentration ?	0	1	2	3	4
34.	Do you bottle up your feelings if something or someone annoys you ?	0	1	2	3	4
35.	Do you feel upset because of something that happened unexpectedly ?	0	1	2	3	4
36.	Do you have a greater dependency on any drugs ?	0	1	2	3	4
37.	Do you have too many decisions to make ?	0	1	2	3	4
38.	Do you enjoy your life ?	4	3	2	1	0
39.	Do you feel unable to control important things in your life ?	0	1	2	3	4
40.	Do you feel that you could not cope with all things you have to do ?	0	1	2	3	4

RESULTS AND ANALYSIS

Analysis of the study was done in different ways so as to provide a clear conclusion.

TABLE 3: ACCORDING TO AGE

According to age: Stress was found to be high

in White Millenials (18-33) and low in Boomers (46-65). After treatment, there was a significant change in stress scores. Older individuals do seem to use fewer strategies, while remaining as effective as the young in their ability to cope with stress. (Aldwin, 1991)

AGE	BT	AT
White Millenials (18-33)	85.77	39.59
Gen Xers (34-45)	79.11	35.33
Boomers (46-65)	74.27	35.27

CHART 1: ACCORDING TO SEX

According to sex, female participants(102.47) showed high stress score than males(63.86). It may be due to

the different ways they react to a stressful situation. However, it reduced to 45.31 and 31.13, respectively

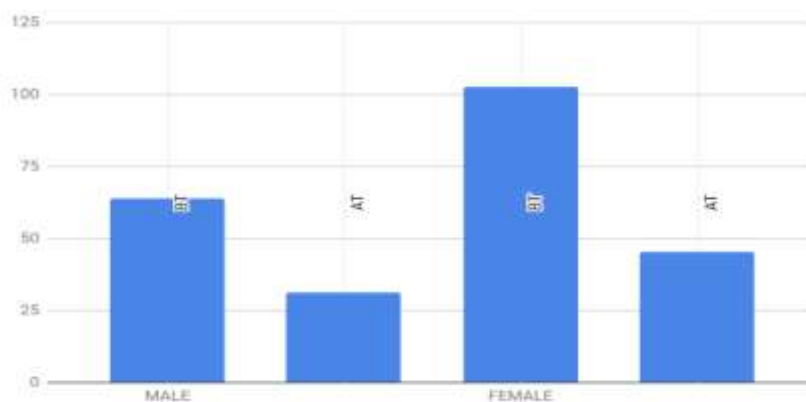


Chart 1: Stress Variation

TABLE 4: DOMICILE

In this study,50%, i.e, equal participants from both

rural and urban areas. People from rural area showed a slightly more stress score than urban. It may be due to poverty, less access to health services etc.

DOMICILE	BT	AT
RURAL	83.28	40.62
URBAN	79.38	34.47

In this study, participants selected from two different sites with variation in number of hours of practice. Ashramates with four hours of practice showed more significant reduction in stress scores than the other

group. It can be concluded that with increase in the time taken for practice, more relaxation of body and mind, felt at the end.

TABLE 5: DURATION OF PRACTICE

Duration of practice	BT	AT
4 hours	82.38	30.52
2 hours	80.54	39

CHART 2: EDUCATIONAL QUALIFICATION

Professionals showed a high stress score than degree earners. It may be due to the risk of jobs they are

attending. Occasional unemployment may also be a reason.

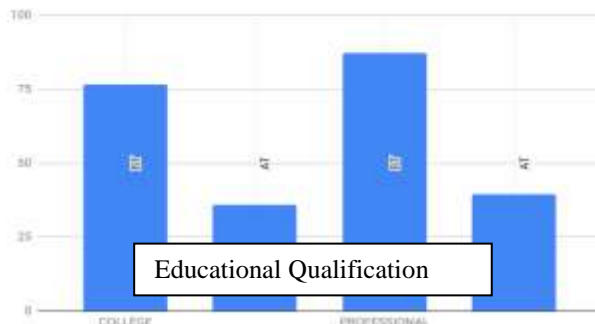


CHART 3: SLEEP DISTURBANCE BEFORE TREATMENT (BT)

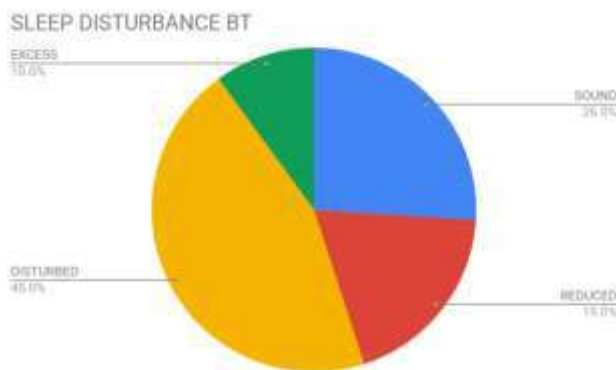


CHART 4: SLEEP DISTURBANCE AFTER TREATMENT (AT)

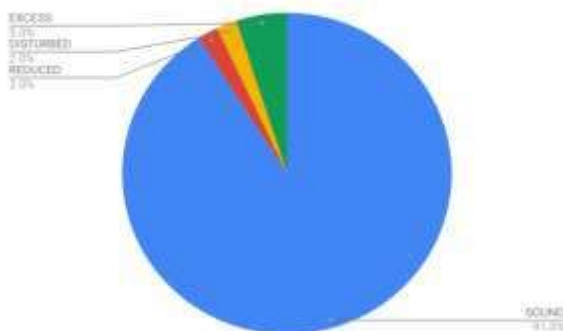


Chart 5: TOTAL STRESS SCORE

Total stress score against Mean.

Before treatment (BT) total stress score was 81.33, which reduced to 37.55 after treatment (AT). This

shows that yoga has a significant role in reducing stress within a short period of time.

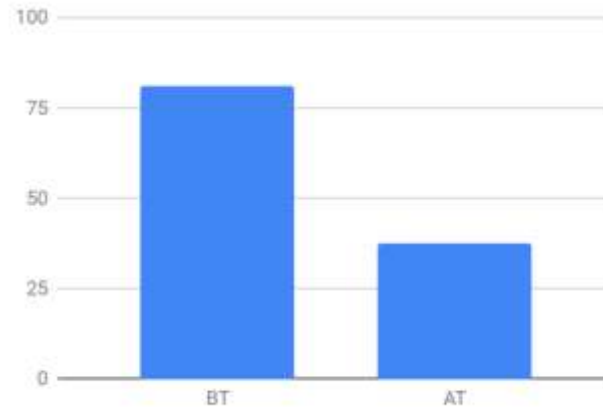


TABLE 6:

	n	Total stress score	
		Mean	SD
BT	42	81.33	20.85
AT	42	37.55	10.86

TABLE 7: Paired comparison (paired 't' test) of effectiveness of selected yoga techniques on total stress score.

Paired comparison	Paired difference		Paired 't' test	
	Mean	SD	t value	p value
BT-AT	43.78	9.99	13.49	<0.001

After the intervention, the average score was 37.55 with a standard deviation of 10.86. The paired difference in mean value is 43.78 with a standard deviation of 9.99. There was a significant reduction in total stress score. The observed difference in average

stress score before and after the intervention was statistically significant i.e. $p < 0.001$. Thus the null hypothesis is rejected and alternative hypothesis is accepted. Therefore yogic techniques practiced for 6 weeks were effective in reducing stress.

CONCLUSION AND RECOMMENDATIONS

The results of this study indicate that yoga had a significant effect in decreasing stress in different age groups. This finding is important since these interventions resulted in a significant reduction in stress in a relatively short period of time. Signs and symptoms of stress, more importantly, sleep and emotional disturbances reduced to a greater extent. Additionally, there would be less obesity and Type-II diabetes, and people would be less aggressive, more content and integrated.

RECOMMENDATIONS

- Same study may be conducted in a larger sample with longer duration.
- Follow up should be done and results should be analysed.
- Compulsory yoga sessions in schools and colleges.
- Yoga classes for all age groups in district or panchayat hospitals.

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