

EFFECT OF YOGIC PRACTICES ON BODY MASS INDEX (BMI) AND STRESS AMONG ADOLESCENT STRESSED GIRLS

¹K. J. Sridevi, ²R. Elangovan

¹ Ph.D Scholar, ²Professor & Head,

^{1,2}Faculty of Yoga Sciences and Therapy, Meenakshi Academy of Higher Education and Research (Deemed to be University), No.12, Vembuliamman Koil Street, West K.K.Nagar, Chennai-78, Tamil Nadu, India.

Email: ¹janardhanasridevi.k@gmail.com, ²relangovantnpesu@gmail.com

ABSTRACT: *The aim of the random group experimental research was to figure out the impact of yogic practices on teenage stressed girls' body mass index (BMI) and stress. For the purpose of the study, 30 stressed adolescent girls were chosen randomly using random sampling group method They came from Chennai between the ages of 14 and 18, and were split into two classes, I and II, each with 15 subjects. It was hypothesized that there will be substantial variations in physiological and psychological factors such as Body Mass Index (BMI) and Depression in the teenage depressed girls than in the control group. Preliminary test was conducted for two Groups on Body Mass Index (BMI) and Stress before the start of the training program. Group I subjects were given Yogic practices for 60 minutes, 6 days a week for a total period of eight weeks. Group II (Control Group) were in active rest. After the experimental period, the two groups were retested again on the same dependent variables. Covariance analysis (ANCOVA) was used to assess the relevant distinctions between the experimental group and the control group. The significance test was set at a degree of trust of 0.05. The results of the study proved that the Experimental Group showed significant differences on selected physiological and psychological variables such as Body Mass Index (BMI) and Stress than the Control Group due to Yogic practices among adolescent stressed girls. The theory was agreed at a confidence level of 0.05. Therefore it is concluded that teenage girls benefit from Yogic activities to sustain a balanced Body Mass Index (BMI) and to overcome stress.*

Keywords: *Yogic practices, Body Mass Index (BMI), Stress*

INTRODUCTION

Adolescence is a period of shift from child to adulthood. They are neither children nor adults. Adolescence experience drastic physical, emotional, psychological and spiritual changes. They lead to unforeseen stress ^[1].

Adolescents make up 22.8% of population of India as of March 2000. Importance and focus is needed as they are future of the nation. The problems of adolescents are multi- dimensional and holistic approach. The need of hour today is to resolve them. Adolescents in India are stressed

due to so many problems. The Problems may be like being out of school, malnourished, early marriage, early pregnancy working in hopeless situations and being sexually active. Stress is the body's response to challenges and the means to face the challenges with attention, energy and strength. It's a fight or flight response which prepares the body either for action, the motivation to get things done or to protect against the challenge. Everyone experiences stress. Stress will affect health when it lasts long. Globally, 86% of the people have suffered stress one time or other. In India, 89% are the sufferers.

Causes of Adolescent stress

Common causes that affect teenagers include:

- Loaded Home works and Higher Secondary school (especially during exams)
- High expectations and insisting from parents and teachers to perform well at school
- Social relationships
- Additional obligations
- Life struggles, such as dropping out of school or entering tertiary studies or jobs,
- Lack of time: so much to do
- Feeling unprepared or cluttered
- Lack of rest
- Improper Diet
- Sedentary Life Style

Signs and Symptoms of Stress among Adolescents

- Diarrhea
- Constipation
- Absentmindedness
- Frequent pains and aches
- Headaches
- Short of power / emphasis
- Sexual issues
- Rigid jaw or spine
- Fatigue
- Trouble sleeping or sleeping for a long time
- Upset stomach
- Alcohol/drug intake for relaxing
- Overweight/ Losing weight

Among school girls, single, married, and working mothers, the primary causes of stress differ, but all name personal, economical, too much work and personal health as the source of their stress.

Yoga for Stress

Yoga is sort of like music. The symphony of life is formed by the rhythm of the body, the music of the spirit, and the harmony of the soul ^[2]

Yogic activities are useful for teenagers to strengthen the focus, concentration, memory, motor speed, and self-esteem (social, intellectual, and total) that are sources of teenage stress. Yoga

strengthens teens' conduct with teachers, thus enhancing school discipline. (Gulati K et.al., (2019))^[3]

Yoga is a psyche body practice that consolidates actual postures, controlled breathing, and reflection or unwinding. Yoga reduces blood pressure thereby decreasing the circulatory strain and pulse rate through proper secretion of Cortisol hormone. Also, nearly anybody can do it and is cost effective. Yoga is considered as best among numerous sorts of reciprocal and integrative wellbeing approaches. Yoga unites physical and mental controls, which assists with accomplishing serenity of body and psyche in this way assisting with unwinding and oversee pressure.

Objectives of the Study

The aim of the research was to figure out if there would be any substantial difference between teenage stressed girls on selected variables such as Body Mass Index (BMI) and Stress.

Purpose of the Study

The aim of the research was to figure out the impact of Yogic practises on teenage stressed girls' body mass index (BMI) and stress.

Hypothesis

Due to Yogic activities on Body Mass Index (BMI) and Tension, it was speculated that there will be substantial discrepancies amongst teenage stressed girls relative to group II (Control Group).

Delimitations

- The study was confined to adolescent Stressed girls from Chennai City, India only.
- Subject's age ranged from 14 to 18 years only.
- The study was confined to yogic practices as independent variable only
- The study was confined to Body Mass Index (BMI) and Stress as dependent variables only.

Limitations

- The Factors like Socio-Economical status were not taken into consideration.
- The climatic conditions were not considered.
- Factors like Life style habits were not taken into consideration.
- Subject's day to day activities was not taken into account.
- Diet and Medication followed by subjects was not controlled.

REVIEW OF RELATED LITERATURE

Barnes VA (2016) conducted a study on 40 overweight high school adolescents aging between 16 and 17 to find the impact of yoga. The study was to determine blood pressure (BP) among the overweight selected subjects. 10 weekly 50 min sessions of yoga with the group size of 20 was given to first group. Subjects were tested for 3 months in the pre-test and follow-up for 3 months in the post-test. Using Space Laboratories 90207 BP sensors, ambulatory BP scores were collected over 24-hour intervals in natural conditions. Over a brief intervention duration, the findings were observed and yoga was concluded to benefit blood pressure over exercise in teenagers who are overweight.^[4]

From two high schools of Tirupati **Kalapriya C (2016)** did a study by randomly choosing 50 boys and 50 girls of ninth and tenth standard. Observations on the samples were done using two tools. The first is General Information schedule consisting of the personal and parent's details and the second tool on questionnaire with 25 questions to find the stress levels. After one month of training, the post-test was performed on the same sample after one month of training to determine the pre and post stress levels among the samples picked. t-test in SPSS was used to analyze the results. The study concluded that at 0.05 level of trust, the stress levels of boys were higher than females. It was also concluded that yoga greatly lowered stress levels for boys and girls and was more important for girls than for teenage boys. ^[5]

METHODOLOGY

For the reason of the experimental random group analysis, 60 came forward, 45 were screened and 30 adolescent stressed girls were selected randomly from Chennai, with age group between 14 and 18 years and they were divided into two groups I and II with 15 subjects in each group. For both classes (I and II), a tentative evaluation was performed on the variables chosen before the start of the training program. Group I subjects were given yogic practices for a total of eight weeks for 60 minutes, six days a week.

Yogic practices such as Loosening the Joints, Surya Namaskar followed by Asanas such as Vrksasana, Trikonasana, Veerabhadrasana, Viparita Karani, Ustrasana, Shasangasana, Matsyasana, Patchimotanasana, Shavasana and Pranayama practices such as Nadishodana Pranyama, Bastrika Pranayama, Brahmari Pranayama followed by Yoga Nidra were given to group I subjects.

Group II (Control Group) subjects were permitted to do their daily routine without any specific training during the study period.

After eight weeks, the two groups were retested again on the same selected dependent variables; i.e Body Mass Index (BMI) and Stress was measured. The Study of Co-Variance (ANCOVA) mathematical methodology was used to distinguish important variations between the experimental and control group test scores. The significance test was set at a confidence level of 0.05.

RESULTS AND DISCUSSIONS

Analyzed data before and after the training period is to find the significant difference using Analysis of Co-variance (ANCOVA) at 0.05 level of confidence are shown in the Tables below.

Table I Covariance study of the means of two experimental classes of the control community on the index of body mass (Scores in Weight (Kg)/Height in m²)

Tests/ Groups	EX. GR-I	CG – II	SV	Sum of Squares	Df	Mean Squares	“F” Ratio
Pre Test	25.39	25.08	B	0.71	1	0.71	1.07
			W	18.42	28	0.66	
Post Test	24.07	25.21	B	9.86	1	9.86	21.00*
			W	13.15	28	0.47	
Adjusted Post Test	24.01	25.27	B	11.33	1	11.33	27.92*
			W	10.96	27	0.41	

* Significant at 0.05 level of confidence.(Table F ratio at 0.05 level, of confidence for df 1 and 28= 4.2, 1and 27= 4.21)

The value of the obtained F ratio is greater than the degree of freedom value of the table (1,28 & 1,27 i.e 4.2 and 4.21). This revealed that due to eight weeks of yogic activities on the Body Mass Index (BMI) in accordance with the studies carried out by the researchers, there was a substantial gap between the means Barnes VA (2016). The ordered adjusted means on Body Mass Index (BMI) is shown in bar diagram for clear understanding of the results of this study as Figure - 1.

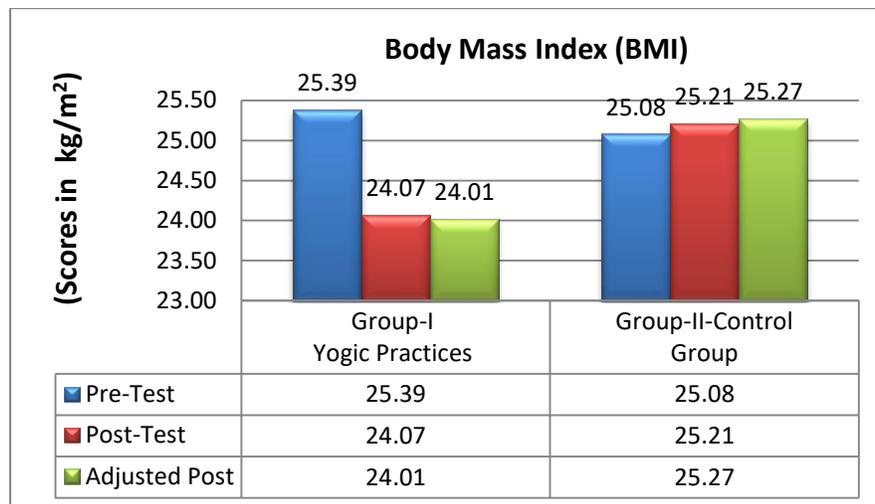


Figure – 1 Bar diagram showing the mean variations in body mass index classes (Scores in Weight (Kg)/Height in m²)

* Significant at 0.05 level of confidence.(Table F ratio at 0.05 level, of confidence for df 1 and 28= 4.2, 1and 27= 4.21)

Table II Covariance analysis of the means of two study groups and of the control group on stress (Scores in marks)

Tests/ Groups	EX. GR-I	CG - II	SV	Sum of Squares	Df	Mean Squares	“F” Ratio
Pre Test	44.33	42.20	B	34.13	1	34.13	1.02
			W	935.73	28	33.42	
Post Test	35.47	43.07	B	433.20	1	433.20	6.92*
			W	1752.67	28	62.60	
Adjusted Post Test	34.80	43.73	B	577.07	1	577.07	11.22*
			W	1388.85	27	51.44	

* Significant at 0.05 level of confidence. (Table F ratio at 0.05 level, of confidence for df1 and 28= 4.2, 1and27= 4.21)

The above table and bar diagram shows significant increase in the test scores than the table value. (df 1&27, 1&28). Which indicates that because of eight weeks of yogic stressful activities, there was a substantial gap between the means of the scores and is in line with the research performed by Kalapriya .C (2016).

In order to better understand the findings of this analysis, the ordered adjusted means on Stress were provided via the bar diagram in Figure - 2.

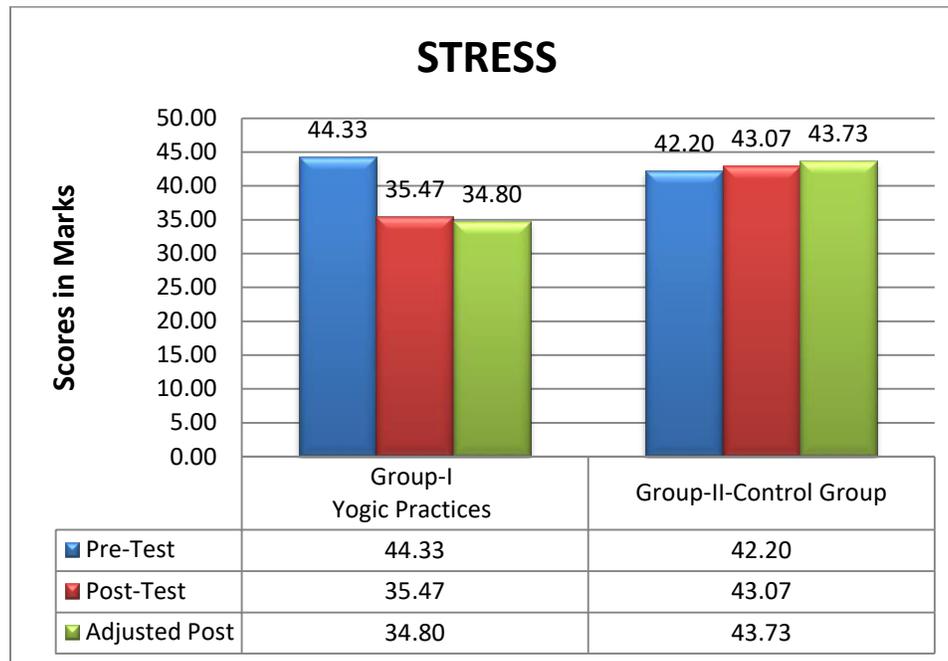


Figure – 2 BAR diagram showing the mean variations on stress groups (Scores in Marks)

* Significant at 0.05 level of confidence.(Table F ratio at 0.05 level, of confidence for df 1 and 28= 4.2, 1and 27= 4.21)

The results of the study showed that Body Mass Index (BMI) decreased and Stress reduced significantly due to Yogic practices for Group-I than Group II. Hence the hypothesis was accepted at 0.05 level of confidence.

The above findings were also substantiated by the observations made by experts such as **Barnes VA (2016) and Kalapriya C (2016)**.

DISCUSSION ON HYPOTHESIS

It was predicted that the chosen physiological vector Body Mass Index would have substantial variations (BMI) and Psychological variable Stress due to yogic practices among adolescent stressed girls than the control group. The results proved that there were significant differences on Body Mass Index (BMI) (Decreased) and Stress (Reduced) because of the yogic activities of the teen depressed girls monitoring group.

CONCLUSION

It is concluded that yogic practices decreased Body Mass Index (BMI) and reduced Stress significantly among adolescent stressed girls. Hence, yogic practices are beneficial to adolescent girls to maintain healthy Body Mass Index (BMI) and to overcome stress.

REFERENCES

- [1]. Adolescence Puberty, Teenagers, Available from <https://www.psychologytoday.com/intl/basics/adolescence>
- [2]. B.K.S. Iyengar > Quotes > Quotable Quote, available at <https://www.goodreads.com/quotes/817190-yoga-is-like-music-the-rhythm-of-the-body-the>
- [3]. Gulati, K., Sharma, S. K., Telles, S., & Balkrishna, A. (January 01, 2019). Self-Esteem and Performance in Attentional Tasks in School Children after 4½ Months of Yoga. *International Journal of Yoga*, 12, 2.
- [4]. Kalapriya.C (2016) Impact of yoga on stress management of adolescent boys and girls, *International Journal of Home Science* 2016; 2(3): 399-401
- [5]. Barnes VA (2016) Impact of Yoga on Exercise and Blood Pressure in Adolescents. *International Journal of Complement and Alternative Medicine* 3(4): 00082. DOI: 10.15406/ijcam.2016.03.00082
- [6]. Krishna Raman (2006), “A Matter of Health”, Chennai, East West Books Pvt.Ltd.PP.24.
- [7]. SwamySatyanandaSaraswati (2001) “Yoga and Cardiovascular Management”, Munger, Bihar, Yoga Publications Trust PP.6.
- [8]. Swami SatyanandaSaraswathi (2009), “Asana Pranayama Mudra Bandha”, Bihar, Yoga Publications Trust. PP.197-362
- [9]. YogacharyaSundaram (2004), “Sundara Yoga Therapy”, Coimbatore, The Yoga Publishing House. PP.170-187.
- [10]. Chandrasekar.N (2012) “Principles and Practices of Yoga Therapy”, Chennai; VHF Publications.P.3.
- [11]. https://www.momjunction.com/articles/benefits-of-yoga-for-your-teenager_0094957/
- [12]. <https://raisingchildren.net.au/pre-teens/mental-health-physical-health/stress-anxiety-depression/stress-in-teens>
- [13]. <https://my.clevelandclinic.org/health/articles/5545-women-and-stress>
- [14]. www.nih.gov.us, www.shodhganga.com, www.ijird.com, www.healthandyoga.com
- [15]. Medlineplus.gov
- [16]. Indiaeducation.net