



A CROSS- SECTIONAL COMPARATIVE STUDY OF EFFECTS OF YOGA ON STRESS.

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ABSTRACT **Background:** We are living in a world overwhelmed with stress. The complexity of our daily life has greatly challenged our ability to live healthily and fully in the present moment. Stress present in each one of our lives to varying degrees. From meditation to yoga used by the people to fight for stress.
Aim: Aim of the study is to compare perceived stress scores among both groups.
Method: Participants were Divided in two groups based on yoga practice and were interviewed for stress using perceived stress scale(PSS). PSS scores were compared among both groups.
Results: There was significant difference in scores of stress among group A (M=8.84, SD=5.2890) people performing yoga and group B (M=13.96, SD=10.3013) Conditions; $t(18)=3.3655$, $p=0.0015$. P value here is <0.05 . Association between two variables was statistically significant.
Conclusion: Use of complementary medicinal practices like yoga are easily accessible and may help in reducing global burden of stress .

KEYWORDS : Yoga, Stress, Complementary Medicine.

INTRODUCTION

Yoga is a form of relaxation and exercise that incorporates stretching, meditation and the Knowledge of the body's full potential. It helps in relieving tension and stress, and helps to increase the strength and vitality. In ancient Indian medicinal system, yoga is described as the link between the individual and the Universe. it can play an important role in our life by controlling the function of our mind i.e. ego, desire and intellect. Yoga is a well-known physical, mental and spiritual Practice since the ancient time and still Benefitting people globally ^[1].

We are living in a world overwhelmed with stress. The intolerant pace and complexity of our daily life has greatly challenged our ability to live healthily and fully in the present moment. Stress present in each one of our lives to varying degrees. Any stressful event triggers a cascade of hormones, adrenaline and cortisol that rush through the body indirectly speeding up our heartbeat and circulation of blood. Over last few decades, stress is an alarming and rising issue among the people. From meditation to yoga to arduous activity to therapeutic drugs used by the people to fight for stress and anxiety yet it lacks in getting fully relief from it in the demanding world. ^[2]

AIMS AND OBJECTIVES

To compare perceived stress scores among people performing yoga and people not performing yoga.

So, the objective of this study is to extend the present knowledge of yoga's effect on level of stress

MATERIAL AND METHODOLOGY

It was a cross-sectional comparative study.

Inclusion Criteria

- Age group- 16 – 70 years
- People performing yoga regularly since 6 months for yoga performing population.
- Willing for self-administered questionnaire.

Exclusion Criteria

- People performing yoga for less than 6 months.
- People who are not able to read or understand English language.
- People already diagnosed with psychiatry illness.
- People who are taking any psychiatric medications.

Ethical permission has been taken from the Institutional Ethical Committee of GCS Medical college.

Study participants included a total of 100 people in which 50 people were taken from Shree Arvind Kendra Gandhinagar who were performing yoga since 6 months and 50 people were taken from general population who never performed yoga.

In both groups people who were able to read and understand English language were taken as self-rating questionnaires were only available in English language.

Informed consent was taken from the study participants.

If a participant's response to the study indicated significant level of stress , the Researcher advised the participant to seek appropriate attention from a trained mental healthcare professional.

The right of privacy and confidentiality were preserved. Socio-demographic details were obtained from the study participants.

Participants were further interviewed for stress using Perceived stress scale (PSS).

PERCEIVED STRESS SCALE (PSS)

- 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 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.
- PSS scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. A short 4 item scale can be made from questions 2, 4, 5 and 10 of the PSS 10 item scale.
- Individual scores on the PSS can range Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived

stress.

0-13 indicates low stress.

14-26 indicates moderate stress.

27-40 indicates high perceived stress.

Statistical Analysis:

- Data was entered in Excel sheet and master chart was prepared.
- Data was analyzed using Microsoft Excel Office 2016 and Social Science Statistics. Statistical tests used are-
 - 1) T- test:
 - Statistical test used for comparing stress scores among people performing yoga and people not performing yoga is t-test.

2) Chi-Square test:

- Using Chi-Square test, comparisons between scores of stress among people performing yoga and people not performing yoga were calculated and p-value was calculated to determine statistical significance.

RESULTS

People were distributed among two groups:

Group A : people performing yoga.

Group B : people not performing yoga.

Among 50 people in group A, mean age was 38.2 years. The majority being in the age group between 30-39 years (n= 18) (36%). Around 13 (26%) people were in the age group of 20-29, 8 (16%) were in 40-49, 11(22%) were in 50-59.

Among 50 people in group B, mean age was 40.1 years. The majority being in the age group between 30-39 years (n= 16) (32%). Around 11 (22%) people were in the age group of 20-29, 12(24%) were in 40-49, 11(22%) were in 50-59.

Among 50 people in group A majority were females 35 (70%) while 15 (30%) were male and in group B also majority were females 33 (66%) while 17(34%) were male.

Among both groups majority of population were Hindu 46 (92%) in group A, 43 (86%) in group B, while n=03 (6%) were Muslim and n = 01 (2%) were Christian in group A and n=05 (10%) were Muslim and n= 02 (4%) were Christian in group B.

Among 50 people in yoga performing people group A majority were graduate n= 24(48%), n=21(42%) were educated upto secondary level and n= 5 (10%) were educated upto primary level, while in group B also majority of the population were graduate n= 24 (48%) and n= 18(36%) were studied upto secondary level while n= 8(16%) were studied upto primary level.

Among 50 people performing yoga group A majority of them were married n=27 (54%) , while n= 16(32%) were unmarried , n=2 (4) divorced , n=1 (2%) were separated and n=4 (8%) were widow.

Among 50 people not performing yoga majority were married n=31(62%) while n=10 (20%) were unmarried, n= 3(6%) were divorced, n=2(4%) were separated and n=4 (8%) were widow.

Among 50 people in group A (people performing yoga) only n=6(12%) were having Hypertension, n=3(6%) were having Diabetes Mellitus and n= 3(6%) were having Thyroid dysfunction, while among 50 people in group B (people not performing yoga) n= 6(12%) were having Hypertension, n=3(6%) were having Diabetes Mellitus and n=5 (10%) were having Thyroid dysfunction. Majority of population were not having any co-morbidities in both groups.

Table No:1 Distribution Of Population As Per Cohen's Perceived Stress Scale (PSS) Scores Among Group A (people Performing Yoga) And Group B (people Not Performing Yoga).

PSS SCORES	GROUP A	GROUP B
LOW(0-13)	43 (86%)	32 (64%)
MODERATE(14-26)	06 (12%)	12 (24%)
HIGH(27-40)	01 (02%)	06 (12%)
TOTAL	50 (100%)	50 (100%)

Table No:2 T-test For Comparison Of Cohen's Perceived Stress Scale (PSS) Score Of People Performing Yoga (GROUP A) And

Controlled Population (GROUP B).

	GROUP A	GROUP B
MEAN PSS SCORE	8.84	13.96
STANDARD DEVIATION	5.2890	10.3013
P VALUE	The t-value is 3.3655 The p-value is 0.0015	

There was significant difference in scores of stress among group A (M=8.84, SD=5.2890) people performing yoga and group B (M=13.96, SD=10.3013) Conditions; t(18)=3.3655, p=0.0015.

P value here is <0.05, hence the result is significant.

To find correlation between stress scores among group A(people performing yoga) and group B(people not performing yoga) Chi-square test was performed

Table No:3 Chi-square Test To Find Correlation Between Stress Scores Among Group A And Group B

	GROUP A	GROUP B	CHI-SQUARE	P-value
LOW STRESS (SAS score <14)	43	32	6.4533	0.011074
MODERATE TO SEVERE STRESS (SAS score>13)	07	18		
TOTAL	50	50		

P value < 0.05 hence, the association between two variables would be considered statistically significant.

DISCUSSION

Among 50 people evaluated in group A (people performing yoga),in which total n=43 found to have low stress while, n=6 had moderate level of stress and n=1 had high level of stress and in group B (people not performing yoga) total n=32 found to have low stress while, n=12 had moderate level of stress and n=6 had high level of stress. When the scores of stress evaluated using t-test and Chi-square , there was a statistically significant correlation between two variables(p=0.0015 for t-test and p=0.011074 for chi-square test) in both the tests, so we can say that people who are performing yoga were likely to have low level of stress than people who are not performing yoga.

Yoga has been associated with higher levels of mindfulness. For example, Brisbon and Lowery (2011) found that advanced yoga practitioners had higher levels of mindfulness (and lower levels of stress) compared to new yogis. Proposed mechanisms: biological mechanisms through which yoga may reduce stress include the autonomic nervous system^[3], hypothalamic–pituitary–adrenal (HPA) axis, endothelial function and release of nitric oxide, endogenous cannabinoids and opiates, inflammatory and endocrine responses, limbic system activity, the peripheral nervous system including GABA and gene expression. There is a growing literature regarding the possible mediating effects of the autonomic nervous system, the HPA axis and inflammatory and endocrine responses. Autonomic nervous system, both sympathetic nervous system (SNS) and parasympathetic nervous system (PNS) are often posited as the mechanism through which yoga reduces stress^[4].

Yoga training has been shown to decrease sympathetic response (systolic pressure, diastolic pressure, mean pressure, heart rate and rate pressure product) after experimental stressors, though no mediation analyses were conducted. Field (2012) hypothesised that enhanced vagal activity caused by the stimulation of pressure receptors due to yoga would lead to decreased stress hormones such as Cortisol. The vagus nerve regulates heart rate, blood pressure, gastric acid secretion and functions in many other organs. Innes et al. (2007) pointed out that yoga has immediate beneficial effects on heart rate variability and baroreflex sensitivity, which are thought to reflect direct stimulation of the vagal nerve. Sengupta, Chaudhuri, and Bhattacharya (2013) posited that yoga decreases vagal stimulation, which causes parasympathetic activation, decreasing perceived stress while simultaneously decreasing activation and reactivity of the sympathoadrenal system and the HPA axis. HPA axis. Purdy (2013) summarised the burgeoning research demonstrating that yoga down-regulates the HPA axis and SNS, both of which have been shown to prevent the release of the stress hormones cortisol and catecholamines. The strength of the study is that it is relevant to healthcare industry. From the research reviewed in relation to this study, there is need to

initiate yoga as psychological intervention for general population to decrease stress and to improve coping mechanisms which can further decrease mild depression and anxiety levels.

The limitations of the research are the sample number, self selection bias, self- reporting bias. Sample size of 100 patients does not provide conclusive evidence, to implement large scale changes. Another limitation of the study is the people who only can understand and read English were taken as rating scales were only available in English language. Also other factors such as different forms of yoga, number of yoga session per week, any other form of relaxation or aerobics exercises were not taken into consideration.

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