

Effect of Yoga on Occupational Stress

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Abstract:In this paper, the effects of yoga intervention on occupational stress among IT employees is reported. The study was conducted among 60 IT professionals from the age group of 30 to 55 years old, who were not involved in any formal exercise program. They were randomly assigned to the yoga group or control group. The participants in yoga group received a weekly 60-minute yoga class for 12 weeks. Statistical significance of the change from baseline to end-program was evaluated with T-test. The differences in total occupational stress index (OSI) score between pre-test and post-test in the yoga group were examined by paired t tests. The mean value of the pre and the post test OSI score of yoga group are 135.8 and 121.1 respectively. The paired t-test showed a significant difference between the pre and the post tests ($t = 6.0$, $p = 0.0$), indicating the participants in the yoga group demonstrated a significant reduction in their work-related stress after the yoga intervention. The results imply that yogic practices have a highly positive impact in the management of stress related problem.

I. INTRODUCTION

Stress is one of the most common disease globally at present. Stress levels seem to be high in India compared to other countries, both developed and emerging, says a survey conducted by Cigna TTK Health Insurance. About 89% of the population in India say they are suffering from stress compared to the global average of 86%. Work and finances are the key reasons people attribute their stress to. According to National Family Health Survey, one in every eight Indian suffers from high blood pressure due to stress, which screened 22.5 million adults across 100 districts in India in 2017. The survey, conducted by the Union health ministry, also concluded that 8.6% of India's population (10.4% Men, 6.7% women) has stress.

There is evidence that employees experience occupational stress and burnout, compassion fatigue, and often lack self-care that can affect their ability to function effectively⁽¹⁾. The occupational physical and mental stressors associated with employees' daily work influence their performance and affect the caregivers and patients⁽²⁾. Occupational stress can lead to physical and mental health issues including, hypertension, depression, presentism, weight issues, and cardiac diseases⁽³⁾. Work-related stress accounts for many employees' occupational health risks. The person suffers from acute depression due to disadvantages and experiences difficulty in adjusting with his life. Yoga can be very helpful if a person wants to get rid of their problems, want to live happily,

maintain physical and mental health. The yogic lifestyle comprises meditation, breathing techniques, correct postures, low-fat non-spicy diet and behavioral modification.

Studies conducted by Singh and Udupa⁽⁴⁾, Dately⁽⁵⁾, Rao⁽⁶⁾, Sachdeva⁽⁷⁾, Vasudevan⁽⁸⁾, and Venkatesh⁽⁹⁾ throw light on the positive effects of yogic practices on experienced stress. Sachdeva et.al⁽⁷⁾ investigated the effect of 12 weeks of yogic lifestyle on hypertension and Findings revealed a significant reduction in systolic and diastolic BP, body weight, serum cholesterol and triglyceride levels following the implementation of the yogic lifestyle. Sahasi, Mohan and Kacker⁽¹⁰⁾ conducted a study to measure the effectiveness of yogic teachings in the management of anxiety. A group of 91 patients suffering from anxiety neurosis were taken up for treatment. Patients were randomly assigned to Yoga therapy (Group I) or drug therapy (Group II), The anxiety level in Group I decreased, the Locus of Control Scale revealed increased attention/concentration though it was not statistically significant. In the drug therapy group, pre-and post-treatment scores were not statistically significant on any test except the Locus of Control Scale.

In a study done at Vivekananda Yoga Anusandhan Samsthan, Bengaluru, Telles et al⁽¹¹⁾ found that Yoga training can help people to reduce their heart rate, which has possible therapeutic applications. In another study done at the same place, Patil and Telles⁽¹²⁾ found Cyclic Meditation Technique, developed by Vivekananda Yoga Anusandhan Samsthan, Bengaluru, to be more effective in achieving voluntary heart rate variability as compared with another yogic technique of Supine Rest (Savasana).

Although several studies in the past have established that yoga addresses the issue of stress, but no empirical data co-relating the yoga way of living specifically reducing stress for the IT employees at workplace, has been done till now. In this paper, impact of yogic intervention on occupational stress of IT employee is explored.

II. METHODOLOGY

The research participants were 60 IT professionals who were not involved in any formal exercise program. They were randomly assigned to the yoga group or control group. This experimental study estimated the sample size based on effect size = 0.45, power = 0.8, alpha level = 0.05, two-tailed, and it was calculated to be 28 for each group; taking 10% of

loss to follow-up into consideration, the sample size was set to be 30 for each group. Sample Size calculation for this study was determined according to the calculation used by Kadam et.al.⁽¹³⁾. Each participant completed a pretest and a posttest. There were 30 participants each in the yoga and control groups. It was expected that the two groups were homogeneous through drawing lots of random allocation.

The intervention in this study was a weekly 60-minute yoga class for 12 weeks. Each yoga class was subdivided into six 10-minute sub-sessions. The yoga class regularly began with slower warm-up exercises: Abdominal breathing, cooling breath, and bellows breath, followed by forced abdominal breathing, meditation, and bodily stretching positions. The fidelity of the intervention was monitored and directed by two qualified teachers. The control group participated in a free tea time without exercise.

The research tools of the study consisted of Occupational Stress Questionnaire. Occupational stress index questionnaire was developed by Dr. A.K. Srivastava and Dr. A.P. Sinha, Banaras Hindu University. This questionnaire consists of 46 items. Occupational Stress Questionnaire was rated on a 5- point scale. Questionnaire consisted of positive and negative key item. The response alternatives ranged in five categories from “Strongly Disagree, Disagree, Undecided, Agree to Strongly Agree”. The participants were asked to respond to each question by choosing one out of five levels of perceptions, from 1 (*Strongly disagree*), 2 (*disagree*), 3 (*undecided*), 4 (*agree*), to 5 (*Strongly agree*). A higher score indicates higher stress levels. The total score of

the individual questionnaire indicate whether employees are low stressed, moderately stressed and highly stressed. As per the OSI, scores in between 46-127 indicate low stress; scores in between 128-150 indicate moderate stress and scores more than 150 indicate high stress. Before and after the yoga intervention, all participants were asked to complete the questionnaire including: demographic characteristics (e.g., gender, age, marital status, educational status, and years of work), professional background, work-related stress scale. The dependent variable was the difference of total score of posttest score minus pretest score of work-related stress, respectively. The independent variable was group (control and yoga).

Research data collected from the participants by questionnaire were coded and double- checked. Data analyses were carried out by using Minitab version 18.0. Paired t tests were used to compare the differences of the pre and post mean OSI score between the two groups.

III. RESULTS & DISCUSSION

Total number of participants included in this study were 60. These were no dropouts during the treatment period. Figure 1. And Figure 2. Shows the Minitab analysis of the box plot comparison of the mean value of the OSI pre and post score of the yoga and the control group. Mean value of the OSI score of yoga and control group are 135.8 and 128.9 respectively. The t value and p-value from the 2-t test are 1.11 and 0.273. Since p value is more than 0.05 which confirmed that there is no significant difference of the pretest mean stress value between yoga and control group.

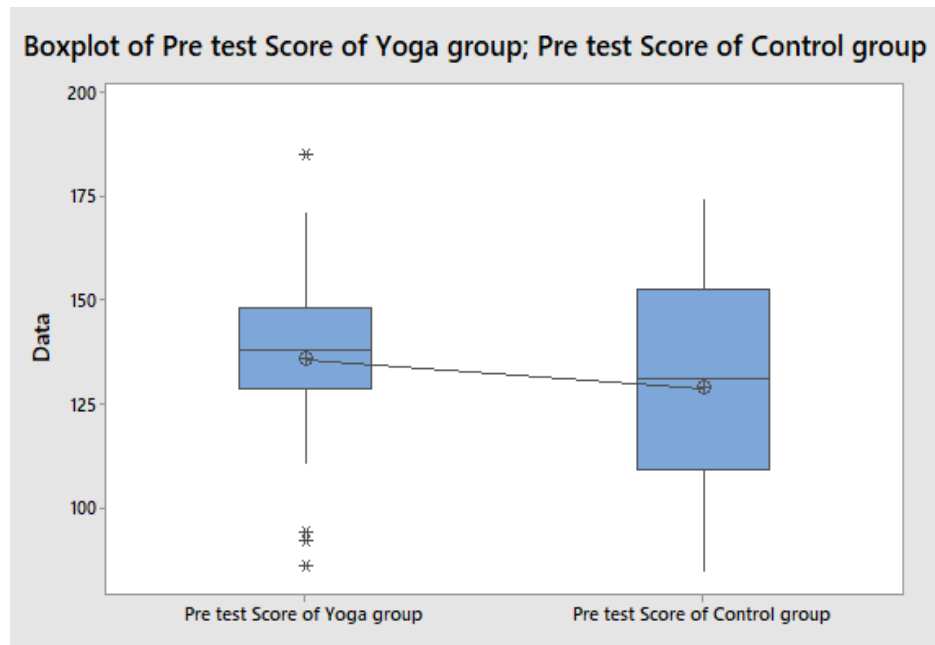


Figure 1. Box plot comparison of the mean value of the OSI pre score of the yoga and the control group

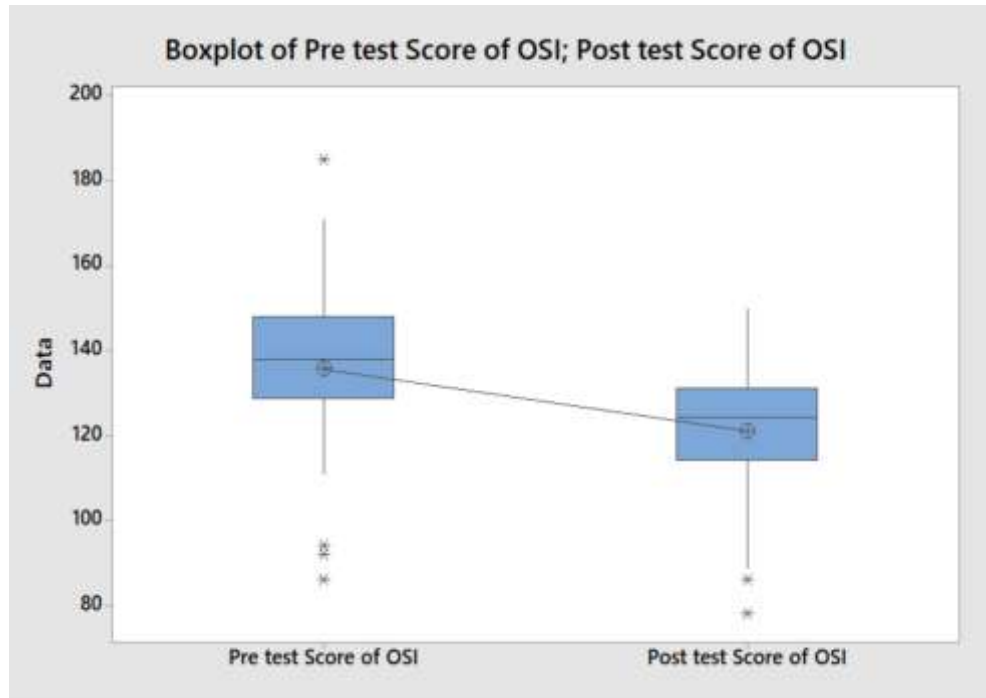


Figure 2. Box plot comparison of the mean value of the OSI pre and post score of the yoga group

The analysis showed box plot comparison of the pre and post OSI mean value for the yoga group. Mean value of the pre and post OSI scores of yoga group are 135.8 and 121.1 respectively. The t and p-value from the paired-t test are 6 and 0.00. Since p value is less than 0.05 which confirmed that there is significant difference of the pre and post mean stress value, indicating the participants in the yoga group demonstrated a significant reduction in their work-related stress after the yoga intervention. Similar analysis was done

for the control group. Mean value of the pre and post OSI score of control group are 128.9 and 132.1 respectively. The t and p-value from the paired-t test are 1.55 and 0.131. p value >0.05 confirmed that there is no significant difference of the pre and post mean stress value. Infact, control group showed slight increase in mean stress value but statistical test confirmed its not significant. Results are summarized in Table 1 and Table 2.

Table 1: Comparison of pretest score of work-related stress between Yoga and Control group

	Yoga group	Control group	T	P
Work-related Stress	M+/-SD	M+/-SD	1.11	0.273
	135.8+/-37.22	128.90+/-26.10		

Table 2: Comparison of posttest score of work-related stress before and after yoga intervention between Yoga and Control group

	Pre-test	post-test	Mean difference	T	P
Variables	M+/-SD	M+/-SD			
Yoga group					
Work-related Stress	135.80+/-21.97	121.07+/-17.84	14.73 +/-13.46	6.00	0.00
Control group					
Work-related Stress	128.90+/-26.10	132.12+/-26.31	-3.23 +/-11.40	-1.55	0.131

IV. CONCLUSION

The changes in work-related stress of participants in the yoga group compared to those in the control group were

analyzed. The dependent variable was the difference of total score between post and pre-test score. The independent variable was group and the covariate was pre-test total score. Results showed that the work-related stress among the IT

professionals significantly decreased after yoga intervention compared to those in the control group.

It may be concluded that yogic practices have a highly positive impact in the management of stress related problem. The strong need is that the various aspects of yogic practices may suitably be embraced as a part of regular training particularly among the employee. This finding also encourages the scope to carry out the various research studies in this regards

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