



COMPARATIVE STUDY ON OCCUPATIONAL STRESS BETWEEN MALE AND FEMALE SOFTWARE PROFESSIONALS AND IMPACT OF YOGA

Yoga

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ABSTRACT

Employees in the software sector are required to put in longer hours to meet tight deadlines due to growing competition. Long-term exposure to these stressful conditions has an impact on both our physical and mental health, which affects both job performance and overall organizational effectiveness. In this paper comparative study on occupational stress between male and female software professionals is reported and impact of yogic training on the occupational stress among male and female software professionals is discussed. A sample of 60 software professionals consisting of 30 males and 30 females from the age group of 30 to 55 years old, has been collected from Ahmedabad Gujarat region. The participants received a weekly 60-minute yoga class for 12 weeks. The participants completed the self-reported occupational stress questionnaire before and after the yogic intervention. Before yogic intervention, the mean stress of male and female software employees was 137.3 and 158.7 respectively. One-way Anova test confirmed that female employees suffered higher stress compared to their counterpart male employees. The higher stress on working females was assigned to dual responsibilities in home as well as in office. A two-way Anova test was conducted considering gender and yoga training as two factors to assess the effects of 12 weeks of yogic training on occupational stress and comprehend the function of gender. Both male and female employees showed reduction in occupational stress after yoga training. These results imply that yogic practices have a highly positive impact in the management of stress related problem.

KEYWORDS

Software professionals, Occupational Stress, Yogic training, Anova test

Introduction

Our lives are inevitably surrounded by stress. Numerous health issues, including high blood pressure, heart disease, depression, anxiety, diabetes, etc., can be brought on by excessive stress. In addition to this, it might damage a relationship with family members on a personal level. Occupational Stress is defined as the stress on the employees due to their job and working condition. Software Industry is one of the very lucrative sectors where majority of the Indian youth like to work due to attractive salaries and various overseas opportunities. Software Industry have long working hour and tight timelines to meet the deadline of the project. The continuous exposure of long working hours and stressful working environment adversely affects our mental and physical health. Software employees are highly stressed. Occupational stress can cause unusual and dysfunctional behaviour at work and contribute to poor physical and mental health. K. Krishnamurthy and S. Prabhakaran [1] conducted research on a variety of stress-related topics, including its effects on individuals, families, and the workplace, as well as its management and organizational health implications among Chennai-based IT workers. According to authors, Chennai's IT sector is generally more demanding, and older personnel are under higher stress. Similar conclusion was reported by Prasad et al. [2] where a comparative analysis of occupational stress between employees of International Agricultural Research Institute (IARI) and the employees of Information Technology sector was done. Prasad et al. concluded that the effect of work stress on the performance of IARI employees is moderate as compared with the IT employees. The study's findings show that employees' performance in IT businesses is impacted by work-related stress in general and the stress component job security in particular. Anuradha Nakka and N.V. Naidu [3] have provided an overview of the challenges and stress observed by IT women employees in Vishakhapatnam. In their study authors have concluded the main reason of stress among IT women employees in majority of IT organizations, are poor working conditions, heavy workload, and lack of employees' participation in management. Sreekumar [4] reported that age is the most important factor which affects the job stress of an employee.

Yoga is an art of living, healthy and spiritually lifestyle. Yoga aims for the integrity of the body, mind, and spirit through a system of Asana, Pranayama and meditation. Many studies have examined the efficacy of yoga to reduce the stress and the overwhelming majority of the studies have described positive benefit associated with yoga. For example, Sahukar Madhura et.al. [5] reported that yoga practicing Indian software professionals cope up with stress and psychosomatic health problems in much better way than non-yoga practicing professionals. In his study, the sample were randomly selected through online survey. One hundred and forty-one people (102 (72.3%) male and 39 (27.7%) female) completed the questionnaire and responded. The mean age of responders was 30 years. (Standard deviation = 5.19 years, range 21-31 years). Statistical t² test was used to compare scores

between Yoga and nonyoga group. The findings of this study have shown that there is a significant correlation among job satisfaction, job stress and health. The yoga group had scored significantly lower in job stress and psychosomatic symptoms score compared with the non-yoga group. That implies yoga is a tool for software professionals to cope up with their stress and psychosomatic disorder.

Srinivas et.al. [6] studied effect of Yoga based cyclic meditation practice on emotional intelligence and perceived stress of the Information Technology (IT) professionals. In their study, 96 IT professionals were selected from Bangalore office of a Multi-National Information Technology company. Authors have concluded that yoga based cyclic meditation practice helps to increase the Emotional quotient and reduce the perceived stress levels for IT professionals.

Various studies have been done around the globe which showed yoga is effective way to reduce the occupational stress, yet there is only a little work done to analyse the effects of yoga on occupational stress specially among Software professionals. There are many factors which can affect the stress such as gender role, marital status, and personal traits which need to be explored. In this paper comparative study on occupational stress between Male and Female employees working in Software Industry is investigated. Besides Gender role on Stress, impact of weekly yoga training on the occupational stress is also studied.

Methodology

A sample of 60 IT professionals consisting of 30 males and 30 females from the age group of 30 to 55 years old, has been chosen from Techno Engineering firm in Ahmedabad Gujarat region. The research participants were not involved in any formal exercise program. There was no control group in this study and analysis was conducted based on pre and post measurements.

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, followed by forced abdominal breathing, meditation, and bodily stretching positions. The fidelity of the intervention was monitored and directed by two qualified teachers. The details of the yogic module can be found in our earlier publication^[7].

Occupational Stress Questionnaire was used as a research tool in this study. Dr A.K. Srivastava and Dr A.P. Sinha of Banaras Hindu University developed the Occupational Stress Index Questionnaire^[8]. A total of 46 items makes up this survey. A 5-point scale was used to score the Occupational Stress Index (OSI) Questionnaire. Positive and negative key items were included in the survey. From "Strongly Disagree, Disagree, Undecided, Agree to Strongly Agree," the

response options were divided into five categories. Each question required participants to select one of five degrees of perception, ranging from 1 (strongly disagree), 2 (disagree), 3 (undecided), 4 (agree), and 5 (strongly agree) (Strongly agree). Higher stress levels are indicated by a higher score. Employees are classified as low, moderate, or highly stressed based on their total score on an individual questionnaire. According to the OSI, low stress is defined as a score of 46-127; moderate stress is defined as a score of 128-150; and high stress is defined as a score of over 150.

The questionnaire data collected from the participants was coded and double-checked. Minitab version 19.0 was used to do the data analysis. One-way and Two-way Anova test is done to study the role of gender and role of Yoga training on stress level.

Results & Discussion

First Normality of the pre and post stress data is checked using Anderson-Darlington (AD) test. During Normality test, no difference between gender is made. The p value of pre-stress and post-stress data is 0.068 and 0.613 respectively. The p value higher than 0.05 from Anderson-Darlington test confirm that both pre and post stress data are Normally distributed. Normality test graphical summary is shown in Figure (1).

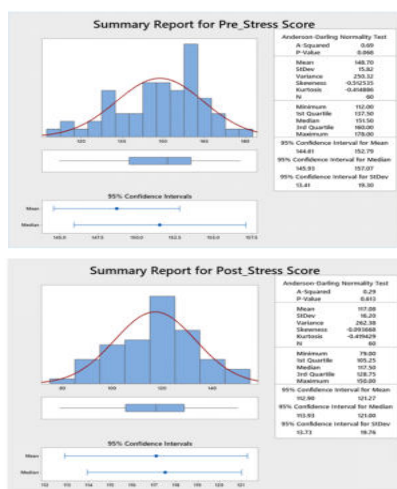


Figure (1) Graphical summary of Normality test on pre and post stress data from Minitab

To determine which gender employees are more stressed before yogic training, one-way Analysis of Variance (ANOVA) test is performed on pre-stress data. Analysis of variance (ANOVA) tests the hypothesis that the means of male and female stress are equal. The null hypothesis states that population means of male, and female are equal while the alternative hypothesis states that is different.

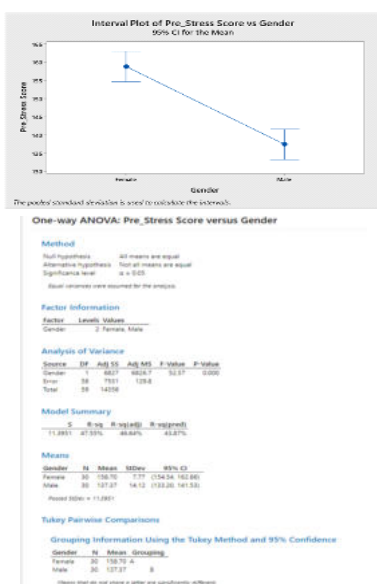


Figure (2) Graphical summary of Anova test on Gender Role of Occupational stress

The p-value for the stress score ANOVA is less than 0.05. This result indicates that the Stress level differs significantly between male and female. Tukey comparison results further confirm that difference between a pair of groups is statistically significant. Interval plot shows the mean stress of male and female employees are 137.3 and 158.7 respectively and stress of female is significant higher. One-way Anova test confirmed that female employees suffer with higher stress compared to their counterpart male employees. The mean value of Stress score > 150 is defined as high stress as per OSI scale. It is not clear why female software employees are more stressed than male employees, but the possible explanation of higher stress on working females may be due to dual responsibilities in home as well as in the office. Men's roles have not changed much. In India most of the men do not support their wife to do housework. Housework is considered the responsibility of the women. Women need to cook, clean the house, clean the dishes, clean the laundry, and get their children ready for school before they go to work. To finish regular housework, she needs to get up early every day therefore she is not able to get proper sleep. If Women are not working outside, then this is still ok as they can get rest in the afternoon. In Software industries, there are long working hours and tight timelines to finish the work, hence, female employees have much higher stress than male employees. To prove if dual responsibility on female employees is the main reason of the higher stress, in future, it will be good to study the effect of marital status on the occupational stress.

To assess the impact of 12 weeks yogic training on occupational stress of one-way ANOVA test is performed on total employees (both male and female together). ANOVA tests the hypothesis that the means of pre and post stress are equal. The null hypothesis states that population means of pre and post stress are equal while the alternative hypothesis states that is different. Mean value of the pre and post Stress scores are 148.7 and 117.1 respectively. Tukey comparison results further confirm the difference between a pair of groups is statistically significant. The p-value from the ANOVA test is less than 0.05 which confirms that the Stress level differs significantly between pre and post. Therefore, it can be concluded that Yogic exercise is effective to reduce the stress.

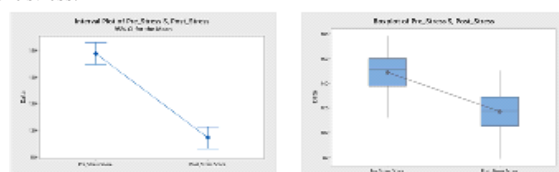


Figure (3): Interval plot of and Box plot between pre and post stress. Graphical summary of one-way Anova test using Tukey method on occupational stress

To get deeper analysis on gender role, Statistical two-way Anova test was conducted considering gender and yogic intervention as two factors. The results of statistical test are shown in figure (4). Mean value of the pre and post stress scores of the male group are 136.81 and 121.1 respectively, while Mean value of the pre and post stress scores of the female group are 158.7 and 111.9, respectively. The p value on male and female employees obtained from ANOVA test are 0.001 and 0.0004 respectively. Both male and female employees showed reduction in occupational stress after yoga training. The p value less than 0.05 from Anova test on both the male and female groups confirmed that there is significant difference in the pre and post mean stress value. The results imply that yogic practices have a highly positive impact in the management of stress related problem irrespective of the gender.

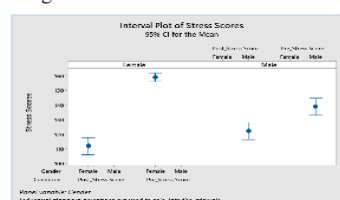


Figure (4): Interval plot of statistical two-way Anova test on occupational stress

The literature showed that yoga has a positive effect on individuals' health and can help to reduce their perceived stress. Riley & Park et.al^[9] in his review paper showed that yoga plays a role in reducing stress and improving health by acting on various biological and psychological mechanisms such as the posterior hypothalamus, C-reactive protein, cortisol, and interleukin-6. These mechanisms resulted in mindfulness, stress reduction, self-awareness, and spirituality and calmness^[10-11]. For example, in a stressful experience, yoga decreases sympathetic responses, such as the systolic and diastolic pressures, heart rate, and vagal activity decreases stress hormones such as cortisol.

Conclusion

Before yogic training, One-way Anova test confirmed that female employees suffered higher stress compared to their counterpart male employees. The higher stress on working females was assigned to dual responsibilities in home as well as in office. After 12 weeks of yogic training, there is a significant improvement in stress level of both females and male software employees. Yoga can be used as a stress management technique to prevent and reduce stress levels of employees' physical body and psychology; and thereby improve day to day activities of the employees at the workplace and in the family also. Overall, practice of yoga is safe when practiced under guidance of a trained teacher and have no side effects. Yoga exercise is recommended to incorporate in daily life to lead a happy, and peaceful life.

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