

VOLUME 8 (SPL 1) 2022

ISSN 2454-3055

Manuscripts under Special Issue are published under the Theme
"ADVANCES IN BIOLOGICAL SCIENCES"

Guest Editor: Dr. S. Mohanasundaram
Assistant Guest Editor: Dr. S.S. Syed Abuthahir

INTERNATIONAL JOURNAL OF ZOOLOGICAL INVESTIGATIONS

***Forum for Biological and
Environmental Sciences***

Published by Saran Publications, India



International Journal of Zoological Investigations

Contents available at Journals Home Page: www.ijzi.net

Editor-in-Chief: Prof. Ajai Kumar Srivastav

Published by: Saran Publications, Gorakhpur, India



ISSN: 2454-3055

Efficacy of Taditional Yoga on Breath Holding Time and Anxiety Among Middle Aged Women Fireworkers Suffering from Pneumoconiosis

Srimathi S.^{1*}, Muthulakshmi² and Elangovan R.³

¹Faculty 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

²Professor and Head, Department of Physiology, Meenakshi Medical College Hospital and Research Institute, Enathur, Kancheepuram, Tamil Nadu 631552, India

³Professor, Yoga Sciences and Therapy, Chennai, Tamil Nadu, India

*Corresponding Author

Received: 1st December, 2022; **Accepted:** 20th December, 2022; **Published online:** 31st December, 2022

<https://doi.org/10.33745/ijzi.2022.v08i0s1.009>

Abstract: The goal of this random group experimental study was to determine the effect of Yoga therapy on selected psychosocial factors and respiratory parameters in middle-aged women with pneumoconiosis. To achieve the study's aim, 40 middle-aged pneumoconiosis-affected women aged 35 to 50 were randomly selected from fireworks manufacturing factories in Sivakasi, Tamil Nadu. The subjects were split up into two groups of 20 each: experimental and control. It was anticipated that the influences of yoga therapy would lead to significant differences in psychosocial factors and respiratory factors such as anxiety and breath holding time among middle-aged female fire worker suffering from pneumoconiosis. The experimental group received yoga therapy training for 12 weeks (six days per week). The control group was kept in a condition of active rest. Both groups had a pre-test and a post-test before and after the training. Both anxiety and the length of time spent holding one's breath were counted. The data collected from the groups before and after the training session were statistically examined using Analysis of Variance (ANOVA) to identify the significant difference and tested at 0.05 level of confidence. According to the study, yoga therapy reduces anxiety while lengthening breath holds. Therefore, it can be said that yoga therapy assisted middle-aged female fire workders with pneumoconiosis in controlling their anxiety and enhances their breath holding capacity.

Keywords: Yoga, Pneumoconiosis, Anxiety, Breath holding time, Middle aged women

Citation: Srimathi S., Muthulakshmi and Elangovan R.: Efficacy of taditional yoga on breath holding time and anxiety among middle aged women fireworkers suffering from pneumoconiosis. Intern. J. Zool. Invest. 8(Spl 1): 70-74, 2022.

<https://doi.org/10.33745/ijzi.2022.v08i0s1.009>



This is an Open Access Article licensed under a Creative Commons License: Attribution 4.0 International (CC-BY). It allows unrestricted use of articles in any medium, reproduction and distribution by providing adequate credit to the author (s) and the source of publication.

Introduction

An occupational lung disease that inflates and inflames the airways is pneumoconiosis. A

whistling sound when you breathe, lightness in the chest, shortness of breath, and coughing are

indeed symptoms of pneumoconiosis. Coughing typically happens at night or in the early morning. People of all ages may develop pneumoconiosis. Pneumoconiosis can take a variety of forms. Occupational pneumoconiosis typically develops soon after the patient begins a new employment and typically goes away quickly after leaving that job. A key element of the multidimensional natural and metaphysical healing paradigm is yoga therapy. For adult women who have asthma, a healthy lifestyle that includes yoga will be a big help in managing the condition as well as a way to improve well-being.

Joshi *et al.* (1995) studied how short-term "pranayama" practice affects lung ventilation and breathing rate. Thirty-three healthy male and forty-two healthy female individuals, with an average age of 18.5 years, participated in a six-week course in "Pranayama," and their ventilatory lung functions were examined both before and after this practice. Lower respiratory rates (RR), improvements in forced vital capacity (FVC), forced expiratory volume at the end of the first second (FEV1%), maximum voluntary ventilation (MVV), peak expiratory flow rate (PEFR-lit/sec), and longer breath holding times are all signs of enhanced ventilatory performance.

Bhargava *et al.* (1988) examined the autonomic reactions to breath retention and its alterations after pranayama. Twenty healthy young men participated in a study to examine their autonomic reactions to holding their breath. The duration of holding a breath, heart rate, systolic and diastolic blood pressure, and galvanic skin resistance (GSR) were all measured. Following the first recordings, all individuals performed Nadi-Shodhana Pranayama for a total of 4 weeks. The same parameters were once again recorded at the end of 4 weeks, and the outcomes were compared. Systolic and diastolic blood pressure at rest and during pranayamic breathing both dramatically dropped from baseline values.

The study's objective was to examine the effects of yoga therapy on a few respiratory and psychological parameters in middle-aged female

fire workers who were pneumoconiosis patients. It was predicted that yoga treatment would have a substantial impact on selected psychological variables and respiratory parameters, such as anxiety and breath holding duration, in middle-aged women firecrackers with pneumoconiosis, compared to the control group.

The delimitations of the study were—(i) Only women affected with pneumoconiosis who were in their middle years were included in the research, (ii) The only range for the subjects' ages was 35 to 50, (iii) Only Sivakasi-based fireworks factories were used to choose the subjects, (iv) Only yoga treatment was the independent variable, and (v) Only anxiety and breath holding duration were the dependent variables. Limitations of the study were – (i) No consideration was given to the respondents' various social, cultural, and economic distinctions, (ii) Environmental variables and the influence of heredity were not considered, (iii) The subjects' lifestyle, personal habits, and family were not taken into account, (iv) Individuals were told to follow the supplied directions, and the study was seen to have limitations due to the subjects' regular activities, and (v) The participants' compliance was not under control.

Materials and Methods

The purpose of this randomized controlled trial was to see if Yoga treatment affected selected psychosocial aspects and respiratory metrics in middle-aged women with pneumoconiosis. To meet the study's goal, 40 middle-aged pneumoconiosis-affected women aged 35 to 50 were randomly recruited from fireworks manufacturing facilities in Sivakasi, Tamil Nadu. Twenty participants were divided into two groups: experimental and control. It was expected that the effects of yoga treatment would result in substantial variations in psychosocial and respiratory parameters such as anxiety and breath holding duration among middle-aged female firefighter with pneumoconiosis. For 12 weeks, six days per week, the experimental group got yoga therapy instruction. The active state was

Table 1: Analysis of variance of the means of experimental group and the control group in anxiety
(Scores in Marks)

Test	Yogic treatment Group -Mean	Control group	Degree of freedom	F-Ratio
Pre-test	27.47	29.13	1.00	2.32*
			38.00	
Post-test	18.00	28.20	1.00	83.26*
			38.00	
Adjusted	17.89	28.31	1.00	80.68*
			37.00	
Mean gain	-9.47	-0.93		

*Significant at 0.05 level of confidence. Table F-ratio at 0.05 level of confidence for 1 and 38 (df) =4.2, 1 and 37 (df) =4.21

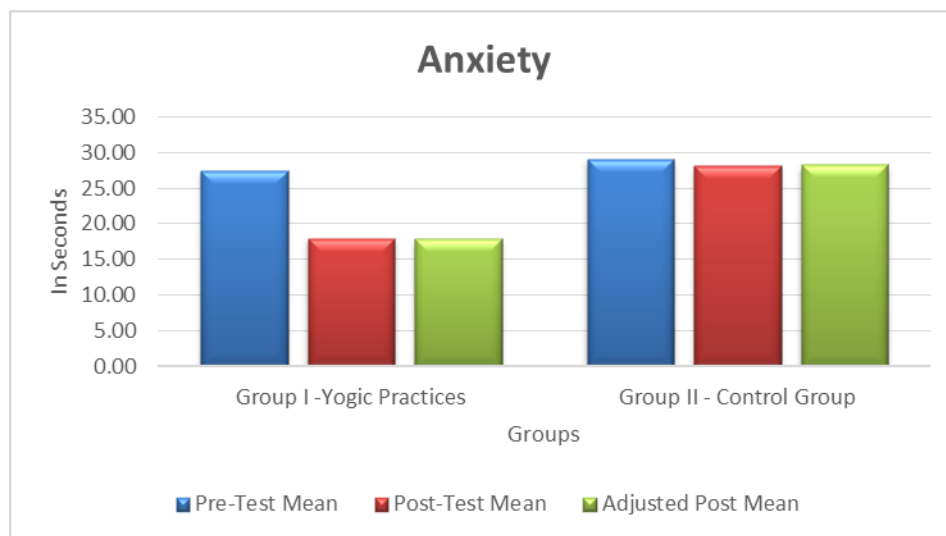


Fig. 1: Mean difference among experimental group and control group. Significant at 0.05 level of confidence. Table F ratio at 0.05 level of confidence for df 1 and 37 =4.21, 1 and 38 = 4.2.

maintained for the control group. The data collected from the groups before and after the training session were statistically examined using Analysis of Variance (ANOVA) to identify the significant difference and tested at 0.05 level of confidence

Results and Discussion

Analysis of Variance (ANOVA) was used to statistically analyse the data on the variables that were gathered from two groups before and after the training session in order to find any significant differences. The significance threshold was set at 0.05.

The Dr. Latha Sathish Scale was used to measure the anxiety. Table I displays the variation in anxiety levels between the Control Group of women fire workers with pneumoconiosis and the Treatment Group.

In the control group and the yoga treatment group pre-test means for anxiety were 27.47 and 29.13, respectively (Table 1). This resulted in a "F" ratio of 2.32, which indicated no difference in pre-test means at the 0.05 level of confidence. The Breath holding time of post-test means for the control group and the treatment group were 18.00 and 28.20, respectively. This led to a "F" ratio of

Table 2: Analysis of variance of the means of experimental group and the control group in breath holding time (scores in seconds)

Test	Yogic Treatment Group	Cont group	Degree of freedom	F-Ratio
Pre-test	50.47	49.60	1.00	*2.51
			38.00	
Post-test	54.20	49.20	1.00	*12.66
			38.00	
Adjusted	53.88	49.52	1.00	*33.78
			37.00	
Mean gain	3.73	-0.40		

Significant at 0.05 level of confidence. Table F ratio at 0.05 level of confidence for df 1 and 37 =4.21, 1 and 38 = 4.2.

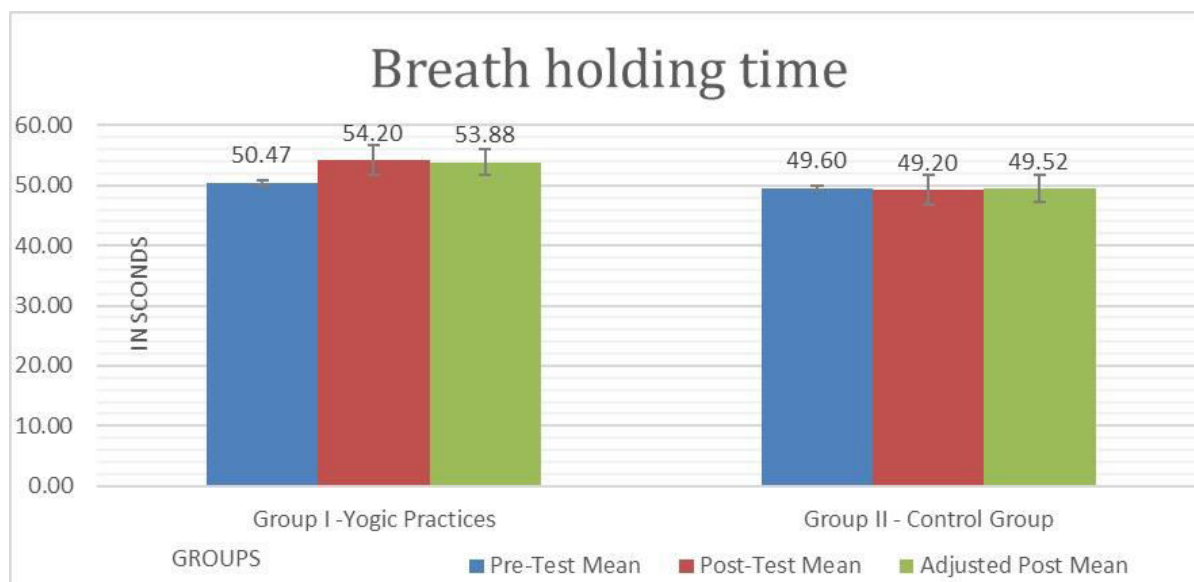


Fig 2: Bar diagram showing the mean difference among Experimental and Control Group Of Breath Holding Time. Significant at 0.05 level of confidence. Table F ratio at 0.05 level of confidence for df 1 and 37 =4.21, 1 and 38 = 4.2.

83.26. For better comprehension of the findings of this study, the ordered adjusted means on anxiety were displayed as a bar diagram (Fig. 1).

Analysis of Variance (ANOVA) was used statistically to compare the variables' data from the two groups before and after the training period in order to find any significant differences, which were then assessed at the 0.05 level of significance. Table 1 summarizes the analysis of variance (ANOVA) results for the anxiety of the

control group and the yogic activities.

The pre-test values for breath holding duration for the treatment group and the control groups were 50.47 and 49.60, respectively (Table 2). This yielded a "F" ratio of 2.52, indicating a statistically significant difference between the pre-test means at the 0.05 level of confidence. The control group (CG) and the Yoga treatment group had post-test means of breath holding duration of 54.20 and 49.20, respectively. This resulted in a

"F" ratio of 12.66, means at 0.05 level of confidence. The adjusted posttest result showed that the breath holding levels in the with yoga treatment and the control groups were 53.88 and 49.52, respectively. The F-ratio value that was obtained was 33.78, which was greater than the table value. For better comprehension of the findings of this study, the ordered adjusted means on Breath Holding Time were displayed as a bar diagram (Fig. 2).

As a result of yoga practices, it was expected that middle-aged female firefighters with pneumoconiosis would significantly vary from the control group on some psychological variables such as anxiety and respiratory parameters such as breath holding duration. Yogic practices enhanced breath holding duration and decreased anxiety, according to the results obtained in this study.

Conclusion

It has been determined that yoga treatment dramatically improved breath holding duration and considerably decreased anxiety in middle-aged female fire crackers with pneumoconiosis. Consequently, yoga treatment is helpful for middle-aged women with pneumoconiosis.

References

- Bhargava U, Bar-Lev M, Bellows CG and Aubin JE. (1988) Ultrastructural analysis of bone nodules formed in vitro by isolated fetal rat calvaria cells. *Bone* 9(3):155-163.
- Joshi KS. (1995) *Yogic pranayama: Breathing for Long Life and Good Health*. Orient Paperbacks, pp. 180.