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Impact of Hatha Yoga Practices and Aerobic Exercise on Psychological Variables in Individuals with Diabetes

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ABSTRACT

The purpose of this study was to examine the impact of Hatha yoga practices combined with aerobic exercise on psychological variables in individuals with diabetes. It was hypothesized that an eight-week program of Hatha yoga combined with aerobic exercise would significantly influence selected psychological variables in people with diabetes. For this study, 30 men with diabetes from Coimbatore district, Tamil Nadu, India, aged between 35 and 45 years, were randomly selected as subjects. A pretest-posttest random group design, consisting of an experimental group and a control group, was used. The subjects were randomly assigned to two groups of 15 each: In Group A Hatha yoga practice was combined with aerobic exercise. In Group B there was no training. Anxiety was assessed. Spiel Berger questionnaire was used. Aggression was assessed too. This was done with the Smith questionnaire. Information was collected before and after training. This training period was eight weeks.A model was used for analyzing the data. Analysis of Covariance or ANCOVA was the model. The aim was to see the influence of Hatha yoga with aerobic exercise on psychological aspects. The individuals in the study had diabetes. Significance level was set at 0.05.The results were clear. Eight-week program had an effect. Hatha yoga combined with aerobic exercise resulted in a significant influence. This was on psychological variables in people with diabetes. Hypothesis that yoga with aerobic exercise would change psychological variables was correct.The eight-week program showed significant influence. It affected psychological variables in individuals with diabetes.The hypothesis that aerobic exercise will modify psychological variables was accepted. It was combined with yoga practice. The study used a combination of Hatha yoga and aerobic exercise. This combination was the focus of the study. The study lasted for eight weeks. It analyzed psychological variables in participants.

Key Words: Hatha Yoga practices with aerobic exercise, Anxiety and Aggression.

INTRODUCTION

HATHA YOGA

Hatha yoga is a practice. It serves as foundation for many yoga forms. Aims to balance and unify. Unify the body mind spirit. Originated in ancient India. Uses physical postures, breath control techniques, meditation. Serves to promote both health and mental clarity. The word "Hatha" comes from Sanskrit roots. "Ha" means sun while "tha" means moon. It symbolizes the integration of opposing forces. Strength and flexibility. Active and passive. Effort and relaxation. The practice is designed to harmonize dualities. Internal and external balance is cultivated. This was discussed in Iyengar's work of 1993. Hatha yoga in modern times is commonly practiced. It's often seen as a physical exercise regime. But its spiritual and philosophical underpinnings are still integral to its practice.

Hatha yoga is often perceived as an introduction to broader yogic path. It helps beginners establish foundation of discipline. This is done while exploring the subtler aspects of yoga. Over the years. Hatha yoga has morphed into a popular practice on a global scale. Many emerging variations focus on various elements of the practice. Modern interpretations of Hatha yoga may focus more on physical exercise. Yet, core principles of balance mindfulness and self-awareness are still central to its philosophy. These principles were discussed by Bhavanani in 2007.

In Hatha yoga practice is time-honored. It unites body and mind through postures. It also uses breathwork and meditation. Its ability to foster physical health is evident. It also fosters mental clarity and spiritual well-being. This makes it a powerful tool for holistic self-development.As Hatha yoga evolves, it remains a vital practice. For whom do you ask? Those who seek balance in their lives. It offers a path to greater self-awareness. Also it offers peace and harmony.

AEROBIC EXERCISE

Aerobic exercise. Often called cardiovascular exercise relates to activities. They increase heart rate and refine efficiency of cardiovascular system. These activities commonly comprise running cycling and swimming. Dancing can be part of them as well. The emphasis here is on prolonged and rhythmical movement. The aim is to raise heart and breathing rates. The primary purpose of aerobic exercise is to enhance the body's oxygen consumption. This in turn magnifies endurance and energy levels. It contributes to better cardiovascular health too. The term "aerobic" itself stands for "with oxygen." This implies that such exercises depend on sustained supply of oxygen. The aim is to supply oxygen to the muscles during extended physical activity. Regular participation in aerobic exercise can yield a range of health benefits for individuals. These benefits include better heart function, lung capacity and muscle endurance. It also leads to improved circulation. Furthermore research indicates that regulated aerobic activity has wider benefits. It helps to lessen risks of chronic conditions. These conditions include heart disease type 2 diabetes and hypertension. It also indirectly contributes to improved mental health. It aids in reducing stress and anxiety. (Thyfault & Booth, 2011).

Aerobic exercise's importance has been well documented. This is apparent in scientific studies and public health recommendations. According to ACSM (2013) at least 150 minutes of moderate-intensity aerobic activity each week can bring major improvement to cardiovascular fitness and overall health. Aerobic exercises prove beneficial not only for adults but also for children and older adults. They help in the maintenance and improvement of physical health throughout life. For the older adults in particular aerobic exercise is linked with enhanced mobility. There is reduced risk of falls. Improved quality of life is also associated with it. The study of Paterson & Warburton (2010) provides evidence for this. Moreover, aerobic exercises are often part of fitness programs focusing on weight management. Burning calories and increasing metabolic rate are roles that they play. This was the finding in the work of Swift et al. (2013).

METHODOLOGY

The aim of this study was to examine the impact of Hatha yoga practices combined with aerobic exercise on psychological variables in individuals with diabetes. It was hypothesized that an eight-week program of Hatha yoga and aerobic exercise would significantly influence selected psychological variables in people with diabetes. The study involved 30 men from Coimbatore district, Tamil Nadu, India, aged between 35 and 45 years, who were randomly selected as participants. A pretest-posttest random group design, consisting of an experimental group and a control group, was used. The participants were randomly assigned to two equal groups of 15 each: Group ‘A,’ which participated in the Hatha yoga and aerobic exercise program, and Group ‘B,’ which received no training. Anxiety was assessed using the Spielberger questionnaire, and aggression was measured using the Smith questionnaire. Data was collected before and after the eight-week training period. The data was analyzed using Analysis of Covariance (ANCOVA) to determine the effect of Hatha yoga and aerobic exercise on the selected psychological variables in individuals with diabetes. The level of significance was set at 0.05.

Results

Table I. Descriptive Statistics of Pre- and Post-Test Scores for Selected Variables in the Hatha Yoga with Aerobic Exercise Group and Control Group

S.No	Group	Variables	Pre-Test Mean	Post-Test Mean	Adjusted Mean
1	Yogic Practices Group	Anxiety	53.74	42.45	42.13
2		Aggression	14.44	11.16	11.06
1	Control Group	Anxiety	54.12	54.03	54.04
2		Aggression	15.14	15.09	15.11

* Significant at 0.05 level

Table II. Calculation of Analysis of Variance for Initial and Final Means of Selected Psychological Variables

Variables		Sources	SS	df	MS	F-ratio
Anxiety	Pre Test	Between sets	1.20	1	1.20	0.24
		Within sets	136.66	28	4.88	
	Post Test	Between sets	1092.03	1	1092.03	102.97*
		Within sets	296.93	28	10.60	
	Pre Test	Between sets	0.83	1	0.83	0.28

Aggression		Within sets	81.46	28	2.91	
	Post Test	Between sets	104.53	1	104.53	30.70*
		Within sets	95.33	28	3.40	

*significant at 0.05 level

In the initial data analysis, an F-test was applied to compare the initial and final means between the Hatha Yoga with Aerobic Exercise Group (HYPAEG) and the Control Group (CG) on psychological variables. The critical F-value for significance with 1 degree of freedom (df) and 28 degrees of freedom at the 0.05 level was 4.19. The obtained F-values for the initial means of anxiety (0.24) and aggression (0.28) were found to be non-significant. These values did not meet the required table value of 4.19 for df 1 and 28, indicating that the mean differences between the HYPAEG and CG on these variables before the treatment were statistically insignificant.

For the final means, the observed F-values for anxiety (102.97) and aggression (30.70) were compared to the critical value of 4.19 at the 0.05 significance level. The observed F-values for anxiety, aggression, self-confidence, and stress were greater than the required table value of 4.19 for df 1 and 28. Consequently, it was concluded that the mean differences between the HYPAEG and CG on the final means for anxiety and aggression were statistically significant.

Table III. Analysis of Covariance on Anxiety

Sources of Variance	**Sum of Squares**	**Df**	**Mean Square**	**F-ratio**
Between sets	1087.75	1	1087.75	99.15*
Within sets	296.21	27	10.97	

*significant at 0.05 level

Table III shows that the obtained F-value was significant at the 0.05 level with 1 and 27 degrees of freedom, where the required table value was 4.21. Since the observed F-value (99.15) was greater than the table value (4.21), it was concluded that the adjusted mean difference between the HYPAEG and CG was statistically significant.

Figure I. The table presents the adjusted post-test mean values for anxiety in the Hatha Yoga with Aerobic Exercise Group (HYPAEG) and the Control Group (CG)

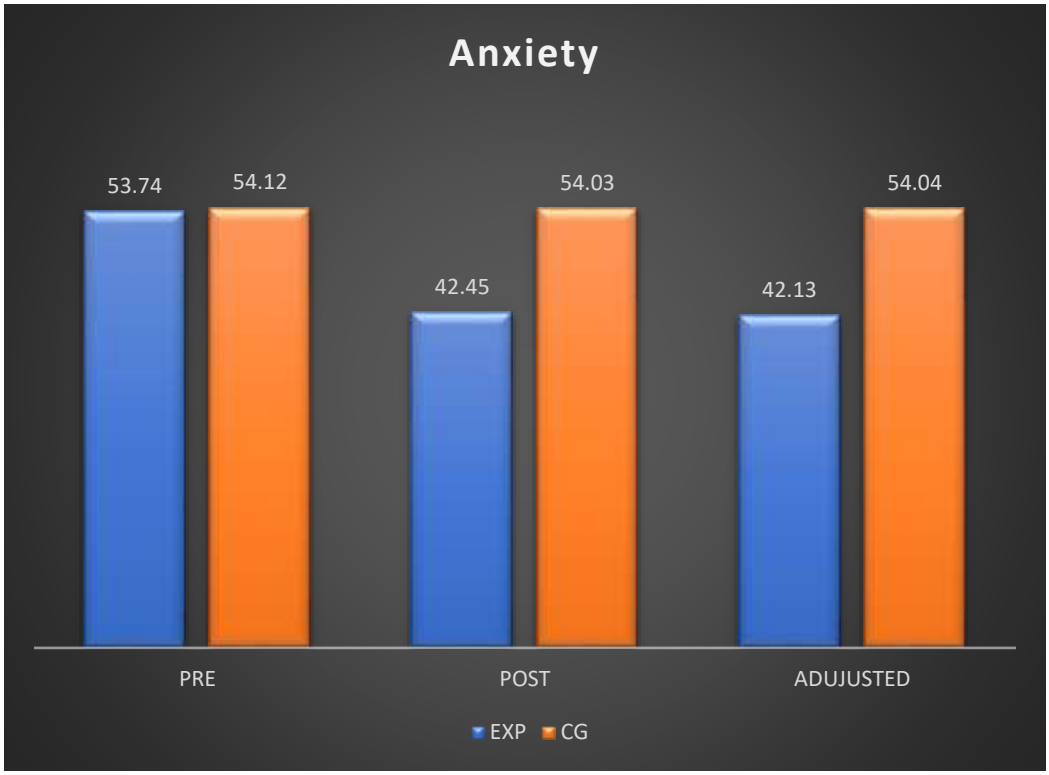

Table IV. Analysis of Covariance on Aggression

Sources of Variance	Sum of Squares	Df	Mean Square	F-ratio
Between sets	106.15	1	106.15	30.60*
Within sets	93.64	27	3.46	

*significant at 0.05 level

The table IV reveals that the obtained 'f' value was, to be significant at 0.05 level for degree of freedom 1 and 27, the required table value was 4.21. Hence, observed 'f' value (30.60) was found as greater than the table value (4.21), it was inferred that the adjusted mean difference existing between the HYPAEG and CG on was statistically significant.

Figure II. Shows the adjusted post-test mean values of hatha yoga practices with aerobic exercise group (HYPAEG) and control group (CG) on Aggression

FINDING OF RESULTS

The results for psychological variables showed a significantly greater improvement in the experimental group compared to the control group from pre-test to post-test (8 weeks). This improvement can be attributed to the regular practice of Hatha yoga combined with aerobic exercise, which may have led to a notable increase in psychological variables among individuals with diabetes. The findings of this study strongly suggest that an eight-week regimen of Hatha yoga practices with aerobic exercise has a significant effect on the selected psychological variables.

CONCLUSIONS

Within the limitation of the present study, the conclusions were drawn.

- The hatha yoga practices with aerobic exercise had shown significant difference in all the selected psychological variables for people with diabetics.
- The experimental group had shown significant improvement in all the selected psychological variables than the control group.

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