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Influence of yoga and brisk walking on selected psychological variables among hypertensive men

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Abstract
The purpose of the study was to find out the effect of yoga and brisk walking on selected psychological variables (stress and self-confidence) among hypertensive men. The selected samples were equally divided into three groups (n=30). Group I underwent yogic practices, Group II underwent brisk walking and Group III acted as control. The study was formulated by the random design, consisting of a pretest and posttest. Pretest were conducted for all the 90 subjects on stress and self-confidence. The experimental groups participated in their respective yoga and brisk walking exercises for a period of twelve weeks. The post tests were conducted for all the subjects again on stress and self-confidence respectively after experimentation of yoga and brisk walking exercises. The data obtained were analyzed by Analysis of Covariance (ANCOVA) to assess the significant difference among the groups on posttest for psychological variables. It is concluded that regular practices of yoga reduced stress and improving self-confidence effectively among hypertension middle aged men than the control group. Brisk walking also reduced effectively the stress and improving self confidence among hypertension middle aged men than the control group. It is found that yoga are slightly effective than brisk walking on the selected psychological variable.

Keywords: Yoga, Brisk walking, stress, self-confidence, Hypertension

1. Introduction

In this modern era, man suffers more with psychological stress than the physical. Human is trying to live a successful life as per the expectation and norms of the society and is continually challenged with rapidly accumulating stresses [1-2]. In this fast moving social set up, with high standard of living and innumerable changes the individual have no time to look back and think about what is happening to his body and mind [3-4]. This accumulated stress for prolonged period leads him to the so called stress induced disorders including heart attacks, high blood pressure, diabetes, asthma, back pain and other psychological problems [5].

A change in attitude and life style is necessary to help the individual to come out from these health hazards and to cope with the future [4]. Traditional yoga philosophy highlighted that human being is living with healthy and motivation. The root cause of ailment of a stress, through the various therapeutical techniques of yoga one can pluck out this cause and can provide health and harmony [6].

Distress is an increasing public health problem that has the major aim to understand the effects of yoga and brisk walking on perceived stress and psychological outcomes in distressed women and evaluated a potential dose effect relationship [4]. Dose effects were seen only in the analysis of group independent effects for back pain, anxiety and depression [7]. Most of studies suggested effectively reduce distress and improves related psychological and physical outcomes [8,-9]. Furthermore, attending twice weekly yoga classes was not superior to once-weekly classes, as a result of limited compliance in the twice weekly group [10].

Human walking is accomplished with a strategy called the double pendulum. During forward motion, the leg that leaves the ground swings forward from the hip. This sweep is the first pendulum. Then the leg strikes the ground with the heel and rolls through to the toe in a motion described as an inverted pendulum [2]. In today's fast paced life, people are leading a very unhealthy lifestyle. The increasing rates of health diseases, stress levels, lack or inadequate sleep are caused due to the fast paced life style [5].

It has the special features that individuals who have high self-respect and high self-esteem also can perceive and find out affections, emotions and answer to the other person's emotions with high self-confidence [11]. It is further find necessary to determine and evaluate emotions to encounter to life incidents and their consequences and the capacity can be an important factor in prediction about the adaptation among peoples [12]. Some studies proved that the mental and physical diseases can be prevented and cured through program and regular exercise practices [2]. It is seem useful in the regular practice of yoga. In fact, the practice of yoga and exercise has a combined effort to reverse the stressful mental effects including stress reduction and improving self-confidence and it is a way from psychophysical disease psycho-physical relaxation. Many extensive researches about yoga and its effects on human's physical and mental health in scientific centers were proved.

The major benefits of the walking are helps overcome depression, helps fight against stress and aids in relaxation, helps overcome sleepless nights, helps to increase the body activity and provides flexibility, helps toning the body and helps to burn fat. The purpose of this study was to find out the effect of yoga and brisk walking on selected psychological variables including stress and self-confidence among hypertensive men.

2. Materials and Methods

A battery of ninety (n=90) hypertensive middle aged men were selected as samples at random from tertiary care teaching hospital and urban private hospitals of Tamilnadu, India. The selected samples were equally divided into three groups (n=30). Group I underwent yogic practices, Group II underwent brisk walking and Group III acted as control. However all the three groups were advised to continue the medicines as per the recommendations of their doctors (Physicians). The study was formulated by the random design, consisting of a pretest and posttest. Pretest were conducted for all the 90 subjects on selected psychological variables including stress and self-confidence using standard questionnaire. The experimental groups participated in their respective yoga and brisk walking exercises for a period of twelve weeks. The post tests were conducted for all the subjects again on the selected psychological variables including stress and self-confidence after experimentation of yoga and brisk walking exercises. The data obtained were Analyzed by Analysis of Covariance (ANCOVA) to assess the significant difference among the groups on posttest for stress and self-confidence to find out the effects of yoga and brisk walking among hypertensive men patients.

2.1. Training Programme

The subjects were selected at random and were divided into three groups and the experimental group I was given yoga between 5.45am to 6.45am and experimental group II was given brisk walking practices between 7.00 am to 8.00am for duration of approximately an hour (5 days a week) for 12 weeks and group III the control group was not given any training. Yoga and brisk walking for selected groups are presented in the Table 1.

Table 1: Training programme given to experimental groups

Groups	Training programmes
Experimental Group - I	Loosening Exercises, Surya Namaskar, Asanas, Pranayama, and Meditation
Experimental Group - II	Brisk Walking
Control Group	No training but inactive rest

The detailed description of the yoga, its duration and rest given between practices among the subjected included were interpreted in table 2. The details of repetitions were also determined thereby 2 repetitions were given in the first four weeks, 3 repetitions in the second found weeks and 4 repetitions in the third four weeks.

Table 2: Details of yogic training

S. No	Yogic Training	Duration	Rest between practices
Loosening Exercises			
1	Sitilikarana Vyayama	5 minutes	-
Surya Namaskar			
2	Surya Namaskar	4 minutes	1 minute
Aasanaas			
3	Padmasana	30 seconds	45 seconds
4	Sasangasana	30 seconds	45 seconds
5	Padahastasana	30 seconds	45 seconds
6	Bhujangasana	30 seconds	45 seconds
7	Chandra badhana Pranayama	1 minute	45 seconds
8	Nadishodana Pranayama	1 minute	45 seconds
9	Bhramari Pranayam	1 minute	45 seconds
10	Japa Meditation	5 minutes	45 seconds
11	Savasana	5 minutes	-

2.2. Brisk Walking Training

The experimental group included for brisk walking was required to undergo brisk walk for 45 minutes continuously without any rest. They underwent this training from Monday to Friday, five days per week. The experimental period was for 12 weeks. Proper warming up and warm down activities was also given to the subjects during the experimental period. The load dynamics for the walking group were analyzed and depicted in table 3. The brisk walking program was scheduled in the morning between 7.00Am to 8.00Am for 5 days (Monday through Friday) a week and the same were continued for 12 weeks. 15 minutes of warming up and cool down practices were also given. Every 4 weeks the intensity and duration of the training Program was gradually increased by the way of repetitions. The following trainings were given.

Schedule for 12 weeks of brisk walking group (Experimental Group - 2)

Mode of exercise - Walking – on flat surface
Frequency - Five days per week for 12 weeks
Duration - Approximately – forty five minutes
Intensity - Mild intensity 50-55%

2.3. Walking Programme for a Session

5 minutes - Warming up
45 minutes - Brisk Walking
10 minutes - Warm down

Table 3: Load Dynamics for walking group

Weeks	Intensity	Duration
1st to 4th Week	40 – 45%	45 minutes
5th to 8th Week	45 – 50%	50 minutes
8th to 12 Week	50 – 55%	55 minutes

3. Results

In this study the psychological variables including stress and self-confidence were analyzed by yoga and brisk walking. The Stress was measured through questionnaire standardized by Latha Sathish. The results on the effect of yogic practices and brisk walking among hypertensive male patients are presented in table 4.

Table 4: Computation of mean and analysis of covariance of stress of experimental and control group (scores in marks)

Test	Experimental Group – I (Varied Yogic Practices)	Experimental Group – II (Brisk Walking)	Control group	Source of variance	df	Sum of square	Mean square	F
Pre-test mean	78.56667	78.97	77.17	Between	2	53.60	26.800	0.03
				Within	87	72090.5	828.63	
Post-test mean	60.26667	65.60	80.50	Between	2	6598.42	3299.21	5.05*
				Within	87	56802.5	652.90	
Adjusted mean	59.98	64.98	81.41	Between	2	7535.00	3767.50	70.64*
				Within	86	4586.80	53.33	
Mean Gain	18.3	13.37	3.33					

*Significant at 0.05 level of confidence. (Table F- ratio at 0.05 level of confidence. For 2 and 87 (df) = 3.1, 2 and 86 (df) = 3.103

Table 4 showed the pretest mean scores of stress of experimental group I yogic practices were 78.5667. Experimental group II brisk walking was 78.97 and control group was 77.17. The posttest means showed differences due to twelve weeks of yogic practices and brisk walking and mean values recorded were 60.267, 65.60 and 81.50 respectively. The obtained F value on Pre Test scores 0.03 was lesser than the required F value of 3.1 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal. The post test scores analysis proved that there was significant difference between the groups as the Obtained F value at 5.05 was greater than the required F value at 3.1. This proved that the differences between the posttest mean at the subjects were significant. Taking this into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 70.64 was greater than the required F value at 3.1. This proved that there were significant differences among the means due to twelve weeks of yogic practices and brisk walking on the stress. Since significant improvement were recorded, the results were subjected to post hoc analysis using Scheffe`s Confidence Interval test and results were interpreted in table 5.

Table 5: Scheffe's post-hoc test for stress

Experimental Group – I (Varied Yogic Practices)	Experimental Group – II (Brisk Walking)	Control group	Mean difference	Required C.I
59.98	64.98	-	4.99*	4.70
59.98	-	81.41	21.42*	4.70
-	64.98	81.41	16.43*	4.70

*Significant at 0.05 level of confidence

Table 5 showed there was significant difference between yogic practices and control group and brisk walking group and control group and yogic practices and brisk walking group. The psychological variable of self-confidence was measured through questionnaire standardized by Rekha Agnihortry. The results on the effect of improving self-confidence by yogic practices and brisk walking among hypertensive male patients are depicted in figure 1. Figure 1 showed the pretest mean Scores of self-confidence of experimental group I yogic practices were 21.133. Experimental group II brisk walking was 21.23 and control group was 20.43. The posttest means showed differences due to twelve weeks of yogic practices and brisk walking and mean values recorded were 28.066, 26.73 and 21.10 respectively. The obtained F value on pre test scores 0.13 was lesser than the required F value of 3.1 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

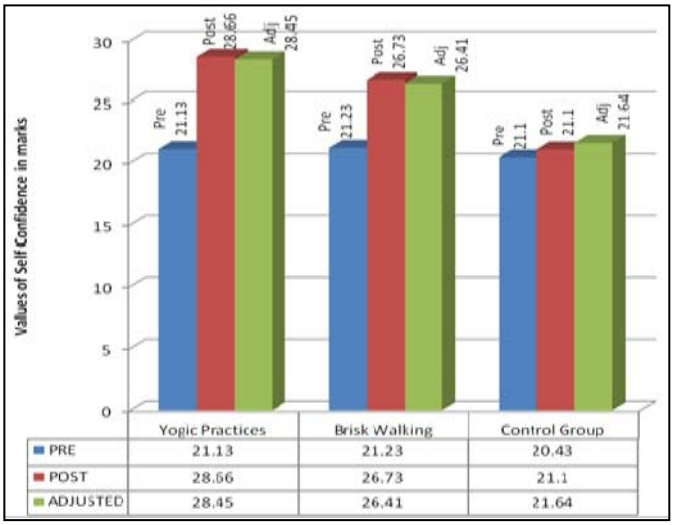

Fig 1: Pre, post and adjusted posttest values of control groups among experimental groups on self confidence

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 7.27 was greater than the required F value at 3.1. This proved that the differences between the posttest mean at the subjects were significant. Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 26.13 was greater than the required F value at 3.1. Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test (Table 3).

Table 3: Scheffe's post-hoc test for self confidence

Experimental Group – I (Varied Yogic Practices)	Experimental Group – II (Brisk Walking)	Control group	Mean difference	Required C.I
28.45	26.41	-	2.04	2.41
28.45	-	21.64	6.81*	2.41
-	26.41	21.64	4.77*	2.41

*Significant at 0.05 level of confidence

4. Discussion

The results presented in table 1 showed that the obtained adjusted means on stress among yogic practices group was 59.98 followed by brisk walking group with the mean value of 64.98 and control group mean value of 81.41. The difference among Pre Test scores, post test scores and adjusted mean Scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.03, 5.05 and 70.64 respectively. It was found that obtained F value on pretest score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 3.1. The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the yogic practices group and brisk walking group there was significant improvement (decrease) in stress than control group and the Differences were significant at 0.05 level. The post hoc analysis between the experimental group namely yogic practices group and brisk walking proved that there was significant difference. The results presented in table showed that the obtained adjusted means on self confidence among yogic practices group was 28.45 followed by brisk walking group with the mean value of 26.41 and control group mean value of 21.64. The difference among Pre Test scores Post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.13, 7.27 and 26.13 respectively. It was found that obtained F value on pretest score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test scores was significant at 0.05 level of confidence as the value was greater than the required F value of 3.1. The post hoc analysis through Scheffe`s confidence test proved that due to Twelve weeks treatment the yogic practices group and brisk walking group there was significant improvement in self-confidence than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely yogic practices group and brisk walking proved that there was significant difference. Some studies with mild to moderate hypertension and reported that yoga can play an important role in risk modification for cardiovascular diseases [13-14]. Another study had reported a better lipid profile in long and medium term mediators when compared to non-meditators [15]. Yoga reduces perceived stress and improves adaptive autonomic response to stress in healthy pregnant women. Relaxation training, of which yoga is one type, has been reported in the medical literature to have wide clinical application. It should be considered as a no pharmacological therapy adjunct or alternative for medical disorders among personnel in occupations (e.g., aviation) where the side effects from medications are of great concern and could be disqualifying from those duties [16-17]. This investigation has its own conclusions that found yogic practices and brisk walking have made significant positive differences on the selected psychological variable reduced and improved the stress and self-confidence respectively among hypertensive middle aged men. Further It is found that yogic practices are slightly effective than brisk walking by reducing stress and improving self confidence among hypertensive middle aged men.

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