

Effect of Aerobic Exercise on Selected Withdrawal Symptoms of Alcoholic Dependents in Selected De-Addiction Centers, Mangalore

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ABSTRACT

Background: Alcoholism and alcohol withdrawal symptoms are increasing day by day. Problems related to withdrawal symptoms may or may not be pathological. Aerobic exercise can promote relaxation and improve cardiac activity there by improve the health benefits of alcoholic dependents.

Aim: To assess the effectiveness of aerobic exercise on selected alcohol withdrawal symptoms of alcoholic dependents.

Methodology: The research design used in this study was Pretest posttest control group design. Total 40 AWS patients randomly selected (20 experimental, 20 control group) by purposive sampling. The tools used were CIWA (clinical institute withdrawal assessment) scale and baseline performa. Aerobic exercise was administered for 20 minutes daily; post test was conducted on the 5th day for both groups.

Results: There was significant decrease in AWS (alcohol withdrawal symptoms) of alcohol dependents before and after aerobic exercise program. The computed $t_{(19)}=11.9$, $p=0.001$ was greater than table value which shows a significant difference in pre and post interventional level of AWS in experimental group. Computed value ($t_{(38)}=3.87$), $p=0.001$ was higher than table value, indicated a difference in the CIWA score between experimental and control group.

Interpretation and Conclusion: The study concluded that there was significant reduction in AWS after the aerobic exercise programme.

Keywords: Aerobic Exercise; Alcohol Dependents; Alcohol Withdrawal Symptoms.

INTRODUCTION

Alcoholism is an illness characterized by significant impairment in physiological, psychological or social functioning of the individual. There have always been people who were unable to restrict their use of mind and body altering substances to culturally prescribed limits, and who have fallen into the trap we know today as addiction. People who become addicted to alcohol gradually introduced and

desensitized to them over a period of time. [1]

According to the National Library of Medicine, if a person has been drinking alcohol for a long period of time suddenly stops drinking, the body can experience certain signs and symptoms of withdrawal. [3] Alcohol withdrawal is likely to start between six hours and a day after the last drink, as reported in American Family Physician. With AWS, they may experience

a combination of physical and emotional symptoms, from mild anxiety and fatigue to nausea. Some symptoms of AWS are as severe as hallucinations and seizures. [2]

The prevalence of alcohol use disorder (alcohol abuse and dependence in DSM-IV) is estimated to be 14 percent in community based samples in the United States and as high as 40 percent among hospitalized patients. Approximately half of patients with alcohol use disorder experience alcohol withdrawal when they reduce or stop drinking. Prevalence of problem drinking was 12.8% across the age groups with the highest drinking prevalence in the age group under 40. [3]

Excessive alcohol use is the third leading risk factor for disease following tobacco and blood pressure. [4] The world health organization estimates that as of 2010 there were 208 million people with alcoholism worldwide (4.1 % of population over 15 years of age.). It often reduces a person's life expectancy by around 10 years. Thus it is necessary that addicts should undergo detoxification treatment and alcohol abstinence. In the U.S., 16.3 million adults (10.6 million men and 5.7 million women) were reported as having an alcohol use disorder (AUD). About 1.5 million adults - less than 1 out of every 10 people struggling with alcoholism - were reported to have received treatment at a specialized AUD facility. [5]

Aerobic exercise is any physical activity that makes you sweat, causes you to breathe harder, and gets your heart beating faster than at rest. It strengthens your heart and lungs and trains your cardiovascular system to manage and deliver oxygen more quickly and efficiently throughout your body. Aerobic exercise uses your large muscle groups, is rhythmic in nature, and can be maintained continuously for at least 10 minutes. In addition to strengthening your heart and cardiovascular system, participation in regular aerobic exercise has many health benefits like it helps to reduce stress, tension, anxiety, and depression. [6]

An experimental study was conducted in Butler Hospital to examine the effect of physical exercise on alcohol dependents. Alcohol dependent patients were randomized to a 12-week moderate-intensity group of aerobic exercise. Results showed that individuals in AE reported significantly fewer drinking and heavy drinking days. Study findings indicate that a moderate intensity, group aerobic exercise intervention is an efficacious adjunct to alcohol treatment. [7]

Investigator noticed that excessive alcohol use rates are increasing day by day, and it became the third leading risk factor for disease following tobacco and blood pressure because of terrain life of human being in the competitive world. Therefore, at this present scenario it is necessary for alcoholic addicts to undergo de-addiction therapy to have a prosperous life and thus reduce health and socioeconomic burden of their country as mentioned above. Withdrawal symptoms are the main barrier that each alcoholic addict has to face on their de-addiction treatment regimen. As far as I am concerned, recent research 7 studies show aerobic exercises as the effective, affordable, strain less and convenient non pharmacological method that gives a better outcome.

Objectives of the study

1. To assess the level of withdrawal symptoms among alcoholic dependents in the experimental and control group.
2. To find the effectiveness of aerobic exercises on withdrawal symptoms among alcoholic dependents in the experimental group
3. To find association between selected demographic variables and pre interventional withdrawal symptoms in the experimental and control group

Hypotheses

All hypotheses will be tested at 0.05 level of significance.

H₁: There will be a significant difference between the mean pre-interventional scores

and post-interventional scores of withdrawal symptoms among alcoholic dependents

H₂: There is significant difference in the mean post-interventional CIWA score in the experimental and control group.

H₃: There will be a significant association between selected demographic variables and pre-interventional level of alcohol withdrawal symptoms.

MATERIALS AND METHODS

The main study was conducted from 28/02/18 to 24/02/18 in de-addiction centre of the Father Muller Medical College Hospital and Mangalore. Formal permission was obtained from the concerned authority prior to the data collection. The quantitative approach & Pre-Experimental two group pretest-posttest control design was used. A total of 40 alcohol withdrawal patients were selected randomly by purposive sampling technique. The tools used for study were baseline performance and CIWA scale. Baseline performance consists 11 questions related to socio-demographic variables such as age, gender, marital status, employment, education, residence, type of family, duration of alcohol consumption, type and amount of alcohol consumed, last drink before admission. Content validity was done by 11 experts which includes experts in the field of psychiatry, psychiatric nursing, and counseling. The reliability coefficient of CIWA scale was found to be 0.80; hence, the tool was reliable.

Procedure

The patients with AWS who fulfilled the sampling criteria were identified. The investigator introduced herself to the subjects and the purpose of the study was explained to them and written consent was obtained. Patients with AWS who admitted in the de-addiction centre were selected by purposive sampling and were assigned to experimental and control group. Baseline characteristics of these subjects were obtained and the subjects were assessed for AWS by the researcher for their level of AWS.

The pre-test was introduced to assess the pre-interventional AWS among both the groups. 5 days of aerobic exercise programme was conducted only for experimental group. A brief introduction about exercise was given orally (Informal discussions) by their mother tongue to the subjects. The investigator encouraged, motivated and guided the participants for exercise. The structured exercise program intervention was administered to each subject in the experimental group for 5 days for 15-20 minutes in the morning. The investigator had taken each exercise. The post-test was conducted on the 5th day again for both the groups and the results were evaluated through the CIWA scale score. The data was analyzed using a paired t test to find out the significant difference between levels of pre-interventional AWS and post-interventional AWS in the experimental group and unpaired t test to find out the significant difference between the post-test scores of experimental and control group. Inferential statistical method Fisher's exact test applied to evaluate the association between the pre-intervention level of alcohol withdrawal symptoms and selected demographic variables in experimental and control group.

RESULTS

This proved that after administration of aerobic exercise, there was improvement in AWS of subjects from moderate AWS to no AWS which proves effectiveness of aerobic exercise.

During the study it was observed that, all the subjects were very conscious and interested to learn an aerobic exercise. The results of pretest of the study revealed that all the subjects were present with AWS and in post-test there was significant decrease in AWS was observed. The results indicated the positive response to the aerobic exercise for improvement of AWS. The subjects expressed that they were expecting more of such kind of programs with more duration of days, pictures, videos,

demonstration and more number of instructors.

Section I: Description of baseline characteristics - Frequency and percentage distribution of subjects according to baseline characteristics in the experimental group and control group.

Most of the subjects (35%) in control group and (40%) in experimental group were in the age of 31-40 years. Majority (75%) of the subjects from both experimental and control group were married. In both the groups most of them (45%) were of secondary education and majorities (60% and 70%) were from rural area. An average of 1/3 of the participants was from joint families. Half of the participants from control group were drinking alcohol more than 15 years, whereas in experimental it was of 40%. In both the groups the favorite brand was whisky. 55% of the control group and 40% of experimental group drank 1 day prior to the admission and most of the participants were taking an average of 1 quarter per day.

Section II Level of alcohol withdrawal symptoms before and after the intervention using CIWA scale both in experimental and control group.

Table 1: Distribution of subjects according to the scores of CIWA scale in the experimental and control group n=20+20

CIWA scoring	Experimental group				Control group			
	Pretest		Posttest		Pretest		Post test	
	f	%	f	%	f	%	f	%
Nil (0)	0	0	11	55	0	0	2	10
Very mild (<10)	9	45	9	45	9	45	18	90
mild (10-15)	3	15	0	0	6	30	0	0
Moderate(16-20)	8	40	0	0	5	25	0	0
Severe(>20)	0	0	0	0	0	0	0	0

Max score = 67

The data in table 2 shows that in experimental group 9(45%) of subjects had

very mild and 8(40%) had moderate level of alcohol withdrawal symptoms. In posttest 9(45%) had very mild and 11(55%) had no alcohol withdrawal symptoms. And during pre-test in the control group 9(45%) had very mild and 6(30%) had mild level of alcohol withdrawal symptoms, where as in posttest 18 (90%) subjects had very mild and 2(10%) had no alcohol withdrawal symptoms.

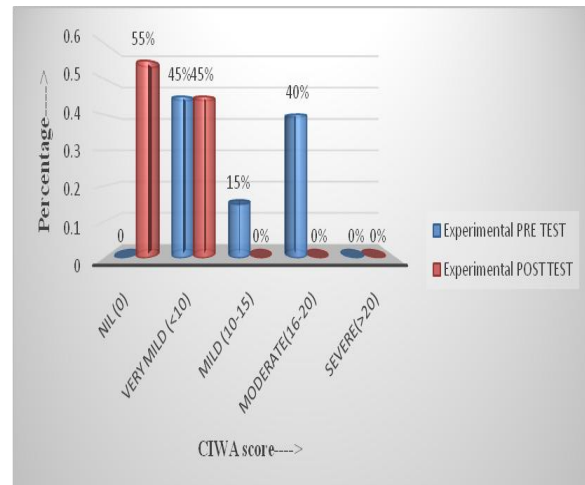


Fig 1. Bar diagram showing the distribution of subjects according to the scores of CIWA scale in the experimental group.

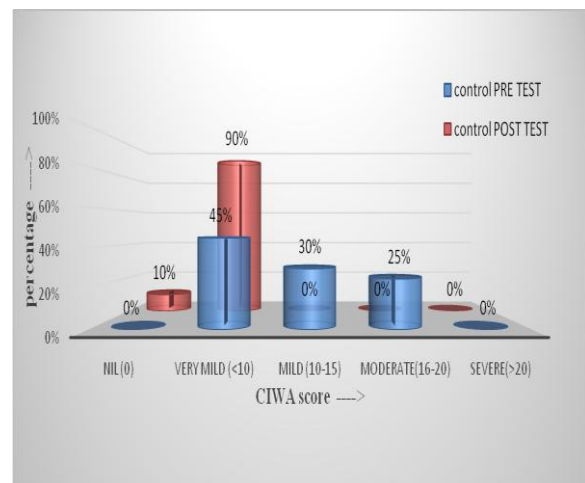


Fig 2. Bar diagram showing the Distribution of subjects according to the scores of CIWA scale in the control group.

Table 2: Range, Mean, Standard deviation of pretest and post test scores of alcohol withdrawal symptoms. n=20+20

Alcohol withdrawal Symptoms	Range		Mean±SD	
	Pretest	Posttest	Pretest	Posttest
Experimental group	4-20	0-4	12.60±5.20	.95±1.316
Control group	5-19	0-8	12.05±4.52	3.4± 2.50

Section III Effectiveness of aerobic exercise on the alcohol withdrawal symptoms based on CIWA scale in experimental group

Table 3: Mean difference and t value of pretest and posttest scores of experimental group n=20

Parameter	Mean difference	Paired t value	P value
pretest			
posttest	11.6	11.9	0.001

$t_{(19)}=2.093, p<0.05$

The computed $t_{(19)} = 11.9, p=0.001$ is significantly greater than the tabled value $t_{(19)}=2.093, p<0.05$ which shows that there is a significant difference in the pre and post interventional level of alcohol withdrawal symptoms in the experimental group. Hence the null hypothesis (H_{03}) is rejected and the research hypothesis is accepted and inferred that aerobic exercise is effective in reducing alcohol withdrawal symptoms.

Section IV Comparison between the posttest scores of experimental and control group

Table 4: Mean difference and t value of posttest scores of experimental and control group n=20+20

Parameter	mean difference	unpaired t value	p value
Experimental group	2.45	3.87	0.001
Control group			

$t_{(38)}=2.021 p=0.001$

The data in the table 4 shows that computed value ($t_{(38)}=3.87$), $p = 0.001$ is significantly higher than the tabled value ($t_{(38)}=2.021$), $p < 0.05$ indicating there is difference in the CIWA score between the experimental and control group. Hence null hypothesis (H_{02}) is rejected and the research hypothesis is accepted

Section V Association between the pre intervention level of alcohol withdrawal symptoms and selected demographic variables in experimental and control group.

P values computed between pre interventional alcohol withdrawal symptoms and selected demographic variables (such as age, gender, marital status, employment, education, residence, type of family, duration of alcohol consumption, type and amount of alcohol consumed, last drink before admission) are more than 0.05 ($p > 0.05$) at 0.05 level of significance

except for educational qualification and type of alcohol. Hence, null hypothesis (H_{03}) was accepted and research hypothesis rejected and inferred that there is no significant association between the alcohol withdrawal symptoms and selected demographic variables in the experimental and control group

DISCUSSION

The findings of the study shows that the computed $t=11.9, p=0.001$ is significantly greater than the tabled value $t=2.093, p<0.05$ which shows that there is a significant difference in the pre and post interventional level of alcohol withdrawal symptoms in the experimental group. Hence inferred that aerobic exercise is effective in reducing alcohol withdrawal symptoms. Also the findings of the study shows that the computed value ($t = 3.87$), $p = 0.001$ is significantly higher than the tabled value ($t=2.021$), $p < 0.05$ indicating there is difference in the CIWA score between the experimental and control group.

These findings are consistent with the findings of study conducted to explore the acute effects of exercise on alcohol urge, withdrawal symptoms and mood disturbance in a counterbalanced cross-over design. The results showed that participants in the experimental group had a significantly reduced alcohol urge and withdrawal symptoms (by 19.7%) compared to the 'control' group during exercise. It found to be significantly decreased in the experimental group compared to control group. [8]

Similar studies which were conducted in the different settings all over the world were supporting that the majority of the alcoholic addicts affected with alcohol withdrawal symptoms.

CONCLUSION

The overall findings of the study clearly showed that AWS was decreased in

the group after aerobic exercise programme. Hence there is a need for conducting aerobic exercise programme among patients with AWS so that their symptoms can be relieved. The effectiveness of aerobic exercise was proved through this study.

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