



## RESEARCH ARTICLE

# EFFECTIVENESS OF CALISTHENICS ON PSYCHOLOGICAL PARAMETERS AMONG ALCOHOL DEPENDENTS

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### ABSTRACT

**Background:** Alcoholism is one of the major public health issues in both developed and developing countries. The harmful use of alcohol cause approximately 3.3 million deaths every year. Alcohol dependence is a chronic disease, in which a person craves for drinks that contain alcohol and is unable to control his drinking habit. Calisthenics exercise has been known to improve mental health while treating problems like Depression, Stress and Anxiety. **Aim:** To evaluate the Effectiveness of Calisthenics on Psychological parameters among alcohol dependents. **Materials and Methods:** True Experimental Research design was used for this study. Initially, 66 Patients were selected by Simple Random Sampling Technique. Among them, 33 samples were placed in the experimental group, who practised Calisthenics and the other 33 were placed in the control group, who received the routine treatment. The data were collected by using DASS- 21 scale questionnaire in pre-test and post-test, organized and analysed. **Results:** In both the groups, statistically highly significant results ( $p < 0.001$ ) were observed and most of the psychological parameters improved positively in the experimental group than the control group. Significant results were observed in the psychological parameters along with DASS-21 Scale scoring. **Conclusion:** This study findings indicated that the Calisthenics intervention proved to be statistically highly significant in the reduction of Psychological parameters among the Alcohol dependents under study.

## INTRODUCTION

Substance related disorders are a significant health problems in today's society. Problems associated with abuse of alcohol, tobacco and other drugs to continue to consume major proportions of health care and the most of people, moderate to heavy consumption is associated with euphoria, mood liability, decreased impulse control, and increased social confidence (Elakkuvana Bhaskar Raj, 2014; Sreevani, 2016). Alcohol damages body tissues by irritating them directly that occur during its metabolism by aggravating existing disease and intoxication. Alcoholism refers to the use of alcoholic beverages to the point of causing damage to the individual and reduces the life expectancy of a person begins drinking heavily, the greater chance of developing serious illnesses (Sreevani, 2016). A person who is suffering with alcohol dependence syndrome also needs to drink a greater amount to experience the same effect and will experience withdrawal symptoms after stopping alcohol use (Manickam, 1994). Diseases in human can occur due to physical, mental or psychological disturbances.<sup>4</sup> People who suffer from alcohol dependence show elevated psychological parameters changes. The prevalence of alcohol dependence is greater with the increased level of depression, anxiety and stress.

Depression is the common type of psychiatric disorders and the person will be quiet, restrained, unhappy and pessimistic and also will have a feeling of lassitude, inadequacy, discouragement and hopelessness. Their attention and concentration are also impaired due to ramification (Bimla Kapoor, 2012). Anxiety is an unpleasurable reaction to an unreal or imagined danger, uneasiness and apprehensions and also has the altered respiratory rate, increased heart rate, dryness of mouth and feeling of weakness (Bimla Kapoor, 2012). Stress is a universal experience and is part of being alive. Stress is a process of adjusting to or dealing with circumstances that disrupt or threaten to disrupt a person's physical or psychological functioning (Elakkuvana Bhaskar Raj, 2014). Day in - day out psychological disorders can be very harmful to our health. We need to make a concentrated effort to decrease psychological problems in order to attain a better quality of life. Calisthenics can promote our brain to release the endorphins, which interact with our receptors and triggers positive feeling ([http:// en.wikipedia.org/wiki/calisthenics](http://en.wikipedia.org/wiki/calisthenics)). Calisthenics is powerful and readily available tools for preventing and treating psychological disorders. Studies are beginning to show that Calisthenics enhances psychological wellbeing ([http:// ezinearticles.com](http://ezinearticles.com)).

A research was conducted to study alcoholic patients experiencing psychological symptoms during their alcohol abuse treatment. Findings showed that there was a significant level of improvement score ( $p < 0.01$ ) and high satisfaction score ( $p < 0.05$ ). The outcome of the studies showed that alcohol-dependent patients have psychological distress problems (Simpson, 2013). A quantitative study method shown the findings of depression level, 36% of samples were experiencing severe depression, 36% anxiety level and 38% severe stress (Faulkner, 2001). A study examined the effect of walking exercise on depression, in people  $>65$  years, with moderate to severe depression and showed a positive impact of walking in people with severe and moderate depression.<sup>10</sup> A very large number of people, their families and communities suffer the consequences of the harmful use of alcohol through injuries, violence, mental health problems and diseases such as stroke and cancer". Now, "It's time to steer up action to prevent this serious threat to the development of healthy societies ([http:// www.livemint.com](http://www.livemint.com)).” The present study was an attempt to identify the effects of Calisthenics on psychological wellbeing among alcohol dependents. So the researcher has stated the problem of the study as the effectiveness of Calisthenics on Psychological parameters among Alcohol Dependents. The study finding has revealed that the levels of Psychological parameters among Alcohol dependents showed significant changes before and after Calisthenics.

## MATERIALS AND METHODS

The Quantitative research approach study was chosen to assess the effectiveness of Calisthenics on Psychological Parameters among the Alcohol Dependents in a selected De-Addiction Centre. The research design chosen for the study was true experimental and the Calisthenics as an independent variable and Psychological parameters as a dependent variable. Ethical clearance from the Institutional Human Ethics Committee was obtained. Content validity and reliability was verified with psychiatry experts. A pilot study (a small scale version or trial) on ten alcohol dependents was carried out first. The sample size was arrived at by using power analysis with the confidence of 90 %. The Sample was selected using inclusion and exclusion criteria and Simple Random Sampling technique (Lottery method). Among 66 alcohol dependents, 33 subjects were placed in the experimental group and 33 subjects were placed in the control group. Calisthenics was administered for 33 subjects for 35 minutes daily for 21 days and the control group went with their routine treatment. The results were assessed in terms of Frequency and percentage. Paired T-Test, Chi-square test and Wilcoxon Signed Ranks test, were carried out to test the association between socio-demographic, psychological parameters and alcohol use. The results showed a statistically highly significant value ( $p < 0.001$ ) and most of the psychological parameters improved positively in the experimental group than the control group.

## RESULTS

The study findings are presented in sections as follows:

**Section-A:** Distribution of demographic variables of Alcoholic Dependents with depression, anxiety and stress.

**Section-B:** Assessment of pre-test and post-test levels of depression, anxiety and stress among Alcoholic Dependents

**SECTION-C:** Effectiveness of Calisthenics Intervention on the levels of depression, anxiety and stress among Alcoholic Dependents.

**SECTION-D:** Association between the levels of depression, anxiety and stress among Alcoholic Dependents with their selected demographic variables.

### SECTION-A

**Distribution of Demographic variables of Alcohol dependents with Depression, Anxiety and Stress:** Amongst the 66 total alcohol dependents, 40 (60.6%) of them were between 20-30 years, 23 (34.8%) of them 31-40 years, 3 (4.5%) of them were in 41-50 years and 48 (72.7%) of them were belongs to Hindu, 17 (25.8%) were of them belongs to Muslims and 1 (1.5%) were of them Christian, 6 (9.1%) of them had no formal education, 26(39.4%) of them primary school level, 6(9.1%) of them high school level and 28(42.4%) of them were graduate. The demographics data of our study population is given in Table1.

**SECTION – B Assessment of Pre-Test and Post-Test level of Depression, Anxiety and Stress among Experimental and Control Group of Alcoholic Dependents:** Fig 1: reveals, the pre-test 1 experimental group 24.2% had severe depression and 75.6% had extremely depression and none of them belong to mild and moderate depression. In control group 3% had moderate depression 36.4% had severe depression and 60.6% had extremely depression.

Fig 2: depicts, post - test 1 experimental group 69.7% had belong to normal stage and 27.2% had mild depression and 3% had moderate depression and none of them belong to severe and extremely severe depression. In control group 3% had moderate depression 42.4% had severe depression and 5.6% had extremely depression. Fig3: highlights, pretest level for the anxiety among alcohol dependents in Pre-test 2. In Pre-test 2 experimental group 54.5% had severe anxiety and 45.5% had extremely anxiety and none of them belong to mild and moderate anxiety. In control group 12.1% had moderate anxiety 57.6% had severe anxiety and 30.3% had extremely anxiety. Fig4: depicts, post - test 2 experimental group 69.7% had belong to normal level and 24.2% had mild Anxiety and 6.1% had moderate Anxiety and none of them belong to severe and extremely severe Anxiety. In control group 12.1% had moderate Anxiety n 60.6% had severe Anxiety n and 27.3% had extremely Anxiety. Fig5: highlights, the pre-test 3 experimental group 45.5% had severe Stress and 54.5% had extremely Stress and none of them belong to mild and moderate Stress. In control group 48.5% had severe Stress and 51.5% had extremely Stress. Fig6: highlights, post - test 3 experimental group 69.7% had belong to normal level and 27.3% had mild Stress and none of them belong to moderate, severe and extremely severe Stress. In control group 9.1% had moderate Stress 84.8% had severe Stress and 6.1% had extremely severe Stress

**SECTION – C: Effectiveness of Calisthenics intervention on level of Depression, Anxiety and Stress**

**Figure1:** Highlights, pre-test 1 the mean and SD value of experimental and Control groups were 35.2, 3.19 and 27.8, 3.31 respectively and post-test 1 the mean and SD value of experimental and control groups was 7.3, 3.88 and 26.9, 3.04

Table 1. Frequency and percentages distribution of demographic variables of subjects

Demographic Variable		Group				Total	
		Experimental Group		Control Group			
		N	%	N	%	N	%
Age	20-30 years	15	45.5	25	75.8	40	60.6
	31-40 years	16	48.5	7	21.2	23	34.8
	41-50 years	2	6.1	1	3	3	4.5
Religion	Hindu	22	66.7	26	78.8	48	72.7
	Muslim	11	33.3	6	18.2	17	25.8
	Christian	0	0	1	3	1	1.5
Educational Qualification	No formal education	3	9.1	3	9.1	6	9.1
	Primary school	11	33.3	15	45.5	26	39.4
	High school	3	9.1	3	9.1	6	9.1
	Graduate	16	48.5	12	36.4	28	42.4
Occupation	Daily Wages	3	9.1	4	12.1	7	10.6
	Business	10	30.3	11	33.3	21	31.8
	Private Employee	19	57.6	16	48.5	35	53
	Government Employee	1	3	2	6.1	3	4.5
Monthly Income	Less than Rs. 2000	2	6.1	1	3	3	4.5
	Rs. 2001- Rs. 4000	1	3	1	3	2	3
	Rs. 4001- Rs. 5000	1	3	2	6.1	3	4.5
	Rs 5001 - Rs. 6000	5	15.2	4	12.1	9	13.6
	Above Rs. 6000	24	72.7	25	75.8	49	74.2
Marital Status	Married	14	42.4	7	21.2	21	31.8
	Unmarried	18	54.5	25	75.8	43	65.2
	Widower	1	3	1	3	2	3
Type of Family	Nuclear	21	63.6	27	81.8	48	72.7
	Joint	12	36.4	6	18.2	18	27.3
Type of Admission	Voluntary	13	39.4	13	39.4	26	39.4
	By relatives	19	57.6	20	60.6	39	59.1
	By force	1	3	0	0	1	1.5
Number of Children	None	20	60.6	15	45.5	35	53
	1-2	12	36.4	13	39.4	25	37.9
	3-4	1	3	5	15.2	6	9.1
Duration of addiction in alcohol	1-4 years	5	15.2	7	21.2	12	18.2
	5-9 years	5	15.2	13	39.4	18	27.3
	10-15 Years	18	54.5	10	30.3	28	42.4
	Above 15 years	5	15.2	3	9.1	8	12.1
Frequency intake of alcohol	occasional	12	36.4	11	33.3	23	34.8
	Once a week	15	45.5	10	30.3	25	37.9
	Once a month	3	9.1	0	0	3	4.5
	Daily	3	9.1	12	36.4	15	22.7
Influenced by whom	Family members	1	3	2	6.1	3	4.5
	Friends	28	84.8	27	81.8	55	83.3
	Neighbours	4	12.1	4	12.1	8	12.1
Amount of intake per day	180- 360 ml	24	72.7	19	57.6	43	65.2
	360- 450 ml	5	15.2	8	24.2	13	19.7
	450- 750 ml	4	12.1	6	18.2	10	15.2

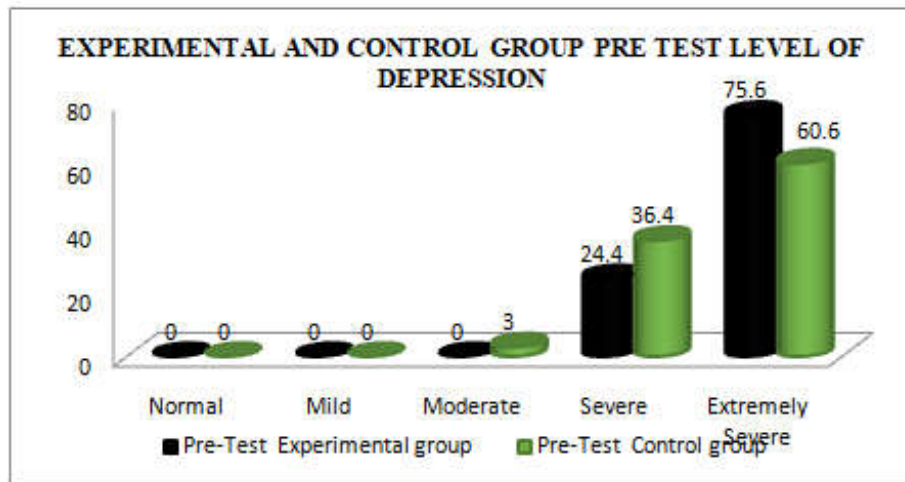


Figure 1. Assessment of Pre-test level of Depression among the experimental and control group of alcoholic dependents

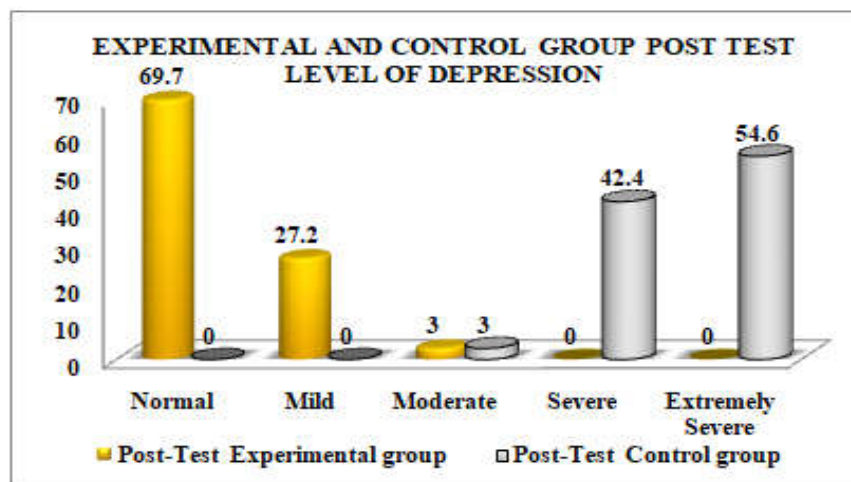


Figure 2. Assessment of Post - test level of Depression among experimental and control group of alcoholic dependents

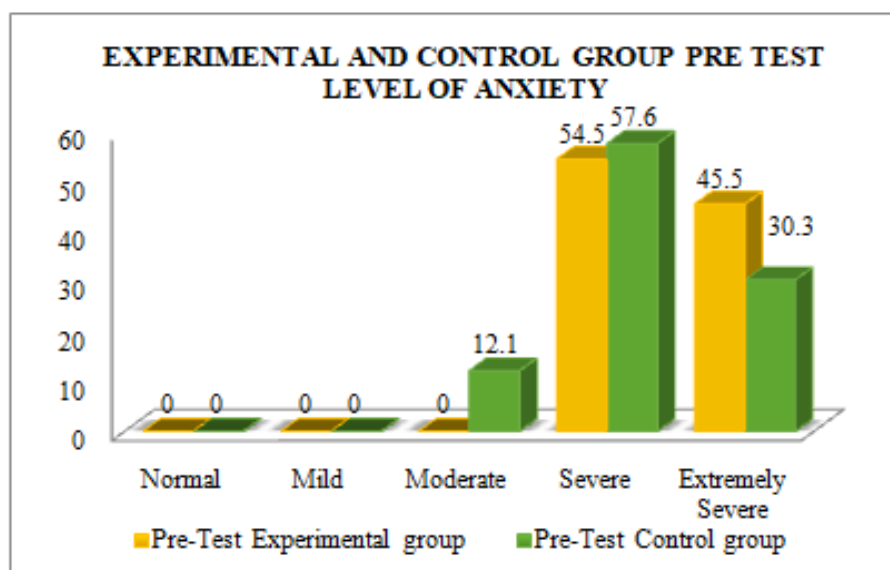


Figure 3. Assessment of Pre - test level of Anxiety among experimental and control group of alcoholic dependents

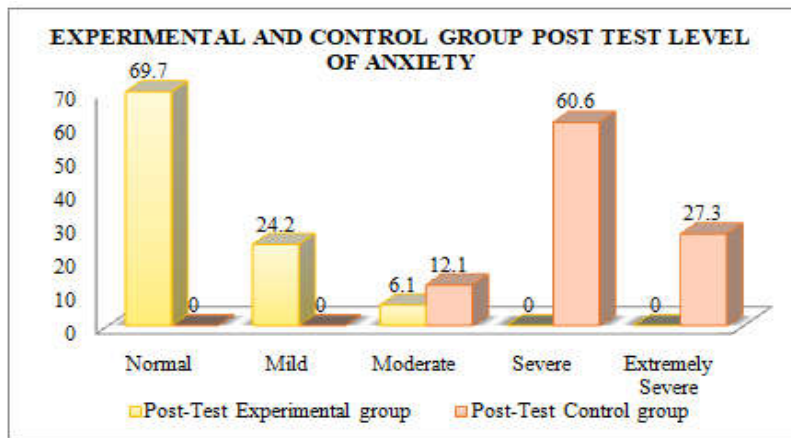


Figure 4. Assessment of Post - test level of Anxiety among experimental and control group of alcoholic dependents

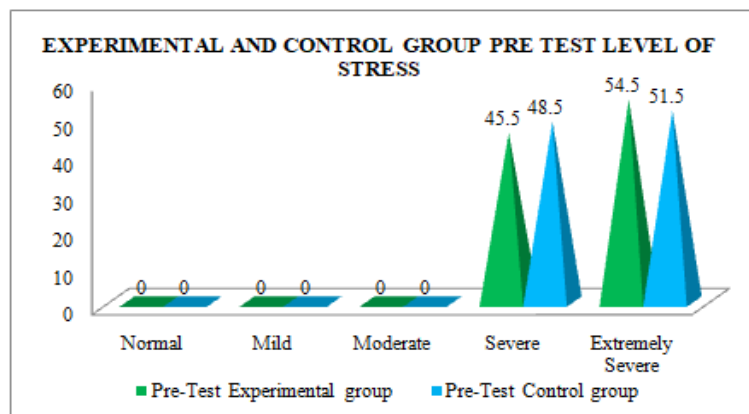


Figure 5. Assessment of Pre - test level of Stress among experimental and control group of alcoholic dependents

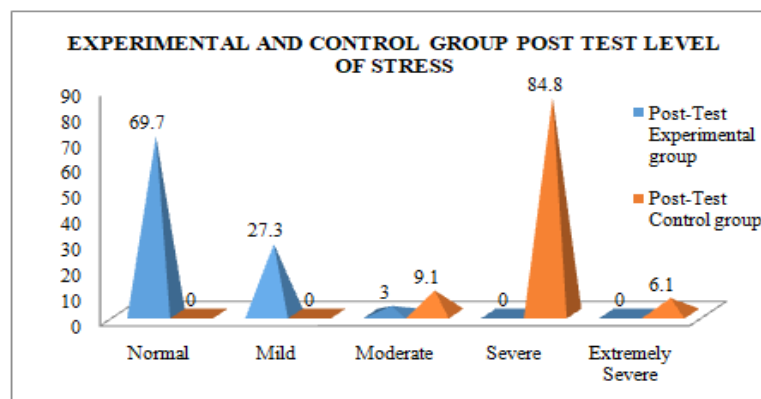


Figure 6. Assessment of Post - test level of Stress among experimental and control group of alcoholic dependents

Section – C. Effectiveness of Calisthenics intervention on level of Depression, Anxiety and Stress

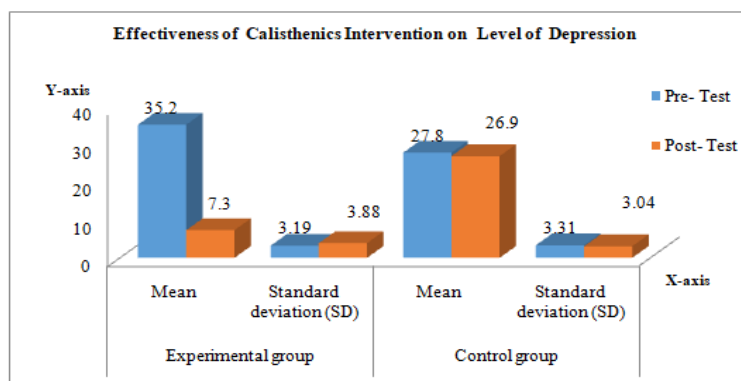


Figure 1. Effectiveness of calisthenics intervention level of depression among alcohol dependents between experimental and control groups

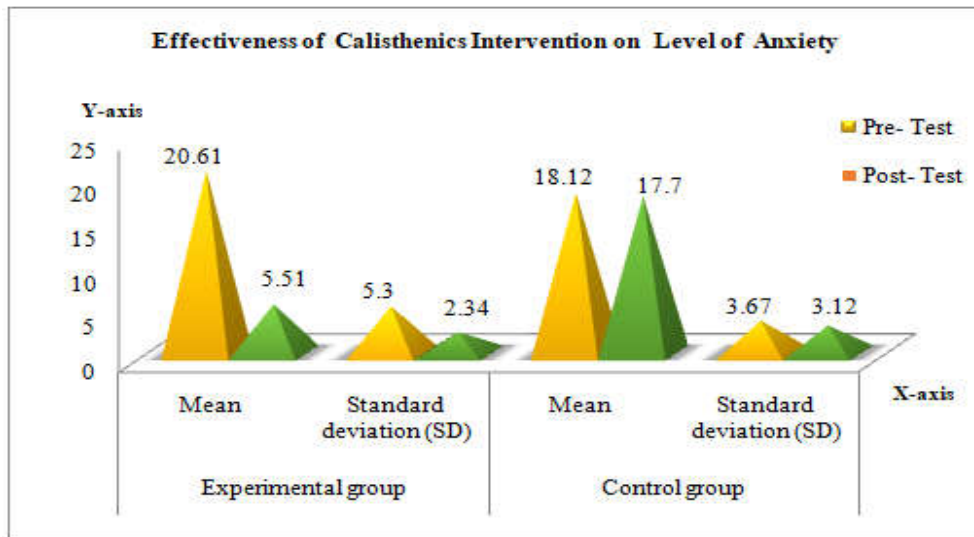


Figure 2. Effectiveness of calisthenics intervention level of anxiety among alcohol dependents between experimental and control groups

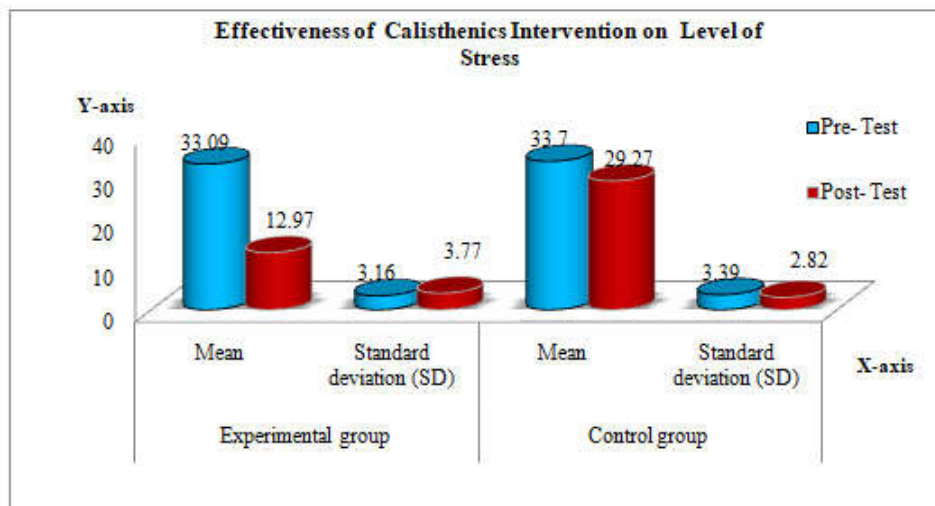


Figure 3. Effectiveness of calisthenics intervention level of stress among alcohol dependents between experimental and control groups

**Section D. Association between the levels of Depression among Alcoholic Dependents with their selected demographic variables**

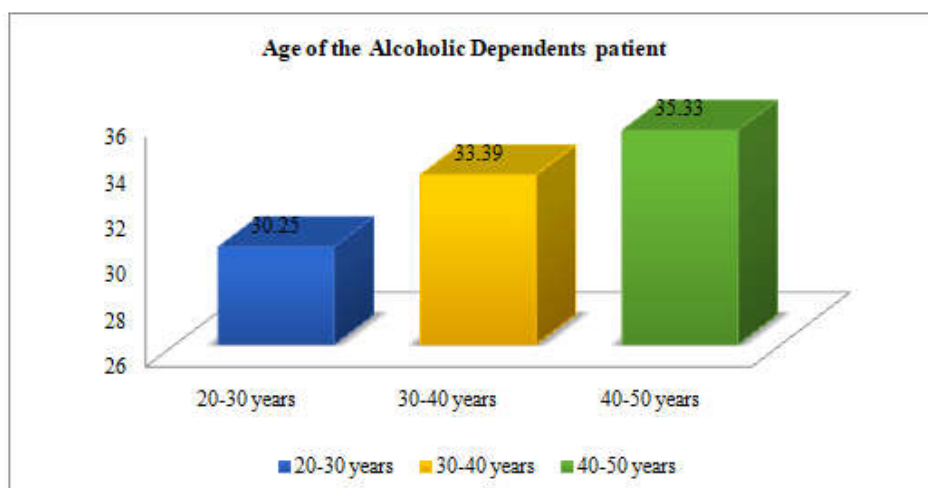


Figure: 1. Association between the level of depression with age of Alcoholic Dependents

respectively and indicates that calisthenics intervention is significantly effective in reducing depression at  $P < 0.001$ . Figure 2: depicts the pre-test 2 the mean and SD value of experimental and Control groups were 20.16, 5.3 and 18.12, 3.67 respectively. In Post-test 2 the mean and SD value of experimental and control groups was 5.51, 2.34 and 17.7, 3.12 respectively and indicates that calisthenics intervention is significantly effective in reducing anxiety at  $P < 0.001$ . Figure 3: shows, the pre-test 3 the mean and SD value of experimental and Control groups were 33.09, 3.16 and 33.7, 3.39 respectively. In Post-test 3 the mean and SD value of experimental and control groups was 12.97, 3.77 and 29.27, 2.82 respectively and indicates that Calisthenics intervention is significantly effective in reducing stress at  $P < 0.001$ .

## Section-D

### Association between the level of Depression among Alcoholic Dependents with their selected demographic variables

Figure:1 There is a significant association between the level of depression with selected demographic variables at  $p < 0.05$ . which shows that depression was associated with the selected demographic variables such as age of the alcoholic dependent patient with the age group of 20-30 years with 30.25, 31-40 years with 33.39, 41-50 years with 35.33. It shows that increased in the age of the people having more depression than the people of low age group.

## DISCUSSION

**The main objective of the present study was to evaluate the effectiveness of Calisthenics on Psychological parameters among Alcohol Dependents with DASS-21 scale:** The post-test level depression mean score (7.3) was significantly less than the pretest level of depression mean score (35.2) by using standard deviation score (3.88) and indicated that Calisthenics exercises is significantly effective in reducing depression at  $P < 0.001$ . The post-test level anxiety mean score (5.51) was significantly less than pretest level of anxiety mean score (20.61) by using standard deviation score (2.34) and indicated that calisthenics intervention is significantly effective in reducing anxiety at  $P < 0.001$ . The post-test level stress mean score (12.97) was less than pretest level of stress mean score (33.09) by using standard deviation score (3.77) and indicated that calisthenics intervention is significantly effective in reducing stress at  $P < 0.001$ . It revealed that the Calisthenics was effective in improving psychological parameters (depression, anxiety and stress) among alcohol dependents. Hence the stated research Hypothesis ( $H_1$ ) was accepted i.e. there is a difference in the level of depression, anxiety and stress before and after Calisthenics among alcohol dependents. This finding is supported by Jeyanthi who had conducted an experimental study on effect of selected Calisthenics on quality of sleep and wellbeing among old age people in selected old home at Coimbatore. The samples were selected by simple random sampling and Calisthenics was practiced. Findings showed that Calisthenics had promoted the overall wellbeing and quality of sleep showing the result of ( $t=18.22, df=58, p < 0.05\%$ ) (Repository-tnmrgmu.ac.in).

**Another objective of the present study was to associate the level of psychological parameters of alcohol dependents with selected demographic variables:** There was a significant

association between the level of depression and stress with selected demographic variables such as age and educational status and duration of addiction of the alcohol dependents at  $p < 0.05$ . The data revealed that there is an association between the level of psychological parameters of alcohol dependents with selected demographic variables at  $p < 0.05$ . Hence, the research Hypothesis ( $H_2$ ) was accepted, i.e., there is an association between the psychological parameters of alcohol dependents such as level of depression with age group and stress with educational status and duration of addiction in alcohol.

## Limitation

- Inconvenience for doing Calisthenics and meditation and problem solving techniques altered sometimes.

## Recommendation

- The study can be done in different groups like aged, students, etc.
- A comparative study can be conducted on primary care givers of alcohol dependents to assess the effectiveness of calisthenics on psychological well-being.
- A descriptive study can be conducted on knowledge and attitude of the alcohol dependents and their care givers regarding calisthenics.
- A study can be carried out to assess the various factors leading to admission of alcohol dependents in to the de-addiction centre.

## Conclusion of the Study

The main study was to assess the effectiveness of Calisthenics on Psychological parameters among Alcohol Dependents at selected de-addiction centre, at Puducherry. This study revealed that the prevalence of Psychological parameters is high among alcohol dependents residing in De-Addiction centre and the post-test median level of Psychological parameters score was lower than pre-test score after administration of the Calisthenics. Thus, this study proved that Calisthenics was effective in promotion of Psychological parameters among Alcohol Dependents. As Calisthenics can be given to alcohol dependents on a regular basis in order to improve their psychological well-being, their caregivers can also practice it whenever possible.

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