



Academic Stress Reduction by Jacobson's Progressive Muscle Relaxation: A Quasi experimental study

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Available online at: www.isca.in, www.isca.me

Received 5th August 2015, revised 15th August 2015, accepted 26th August 2015

Abstract

Adolescence is a transitional stage, where a teen experiences extreme stress in almost every sphere of life. The present study was conducted to evaluate the effectiveness of Jacobson's progressive muscle relaxation technique on academic stress among the adolescents in selected schools of Mangaluru, Karnataka. Quasi experimental non randomised pre test post test control group design was adopted for the study and 100 adolescents studying in tenth standard were selected using non probability purposive sampling technique and 50 each were assigned in experimental and control group. After the pre test assessment of academic stress using the self administered stress rating scale, Jacobson's progressive muscle relaxation technique was administered only to the experimental group for 10 days and then post test assessment of academic stress was conducted using the same scale. According to the present study, the mean post test stress scores ($35.76 \pm SD$) in the experimental group were found to be lesser than the mean pre test stress scores ($38.36 \pm SD$). However, the mean post test stress scores in the control group were found to be higher ($38.16 \pm SD$) than the mean pre test stress scores ($36.22 \pm SD$). The calculated 't' value ($t_{(98)} = 7.15$) was greater than the table value ($t_{(98)} = 1.98$) at 0.05 level of significance. It was thus proved that Jacobson's Progressive Muscle Relaxation Technique was effective in reducing the academic stress among the adolescents.

Keywords: Jacobson's progressive muscle relaxation technique, academic stress, adolescents.

Introduction

Stress and anxiety is a part and parcel of every student's life. As a student, the origin of stress may be related to academic and social situations, environment and lifestyle¹. Adolescents comprise about 1/5th (21.5%) of the total Indian population². The lifetime prevalence of stress among adolescents around the world is approximately 5- 70%³. In Karnataka, statistics shows that 93- 100% adolescents exhibit medium to moderate stress, 1- 9% experience severe stress, and only 1.79% are under the normal group⁴.

Academic stress is been considered as one of the major stressor to the adolescents and it may in turn subject them to low self-esteem. Psychological problems such as depression, suicide occur as a result of this low self-esteem. Over the last 30 years, stress experienced by the adolescents is estimated to have peaked to 45%⁵. A study to identify the level of academic stress and self esteem among higher secondary school students was conducted in selected schools of Udupi district. Academic stress rating scale and Rosenberg self-esteem scale were used for data collection. As per the study results, 80.20% students had moderate stress, 13.5% had mild stress and 6.2% had severe stress⁶.

In student life stress can be correlated with the ongoing life experiences, worries, competitions at school, at home, in

community and also in the friends circle. Majority of the teenagers in turn suffer from teenage depression in response to the piled up anxieties. Therefore, learning and practicing skills to manage stress is beneficial for the adolescents. The stress level in an individual can be managed with relaxation techniques that call for the body to relax⁷. A number of stress reduction programs are now available like yoga, massage therapy, self hypnosis, progressive muscle relaxation, guided imagery, bio- feedback etc. Jacobson's progressive muscle relaxation is one such therapy that is mainly practiced to relieve stress and anxiety by tensing and relaxing the various muscle groups⁸.

In order to determine the effectiveness of Progressive muscle relaxation on stress among staff nurses in selected hospitals of Vadodara city, an experimental study was conducted. It revealed that majority of the staff nurses in the pre test had moderate stress whereas in the post test majority had mild stress, which revealed the efficacy of progressive muscle relaxation in reducing the stress level⁹.

Investigators from their personal experiences and during the literature review have found that the adolescents experience stress due to multiple factors, especially through that of their academics. So they felt the need to assess the level of their academic stress, and determine the effectiveness of Jacobson's

progressive muscle relaxation technique on academic stress among the adolescents.

Material and Methods

The research design adopted for the study is quasi experimental non randomised pre test post test control group design. The study was conducted among 100 adolescents studying in tenth standard of selected schools, Mangaluru, Karnataka. The samples were chosen by non probability purposive sampling technique and were assigned equally in experimental and control group. After the approval from the Institution Ethics Committee and permission from the concerned school authorities, the data was collected using the self administered stress rating scale.

The tool consisted of Section-A: Baseline Proforma which included 8 items- age, gender, religion, birth order, number of siblings, monthly family income, type of family and area of residence, Section-B: Self Administered Stress Rating Scale with 25 items which was subdivided into 3 domains such as physical/ physiological, psychological and social. It is a 5 point likert scale ranging from 0-4, where '0' indicated never, 1- rarely, 2- sometimes, 3- often, 4- very often. Score interpretation was as follows; 0- 25: Good control over stress, 26- 50: Mild stress, 51- 75: Moderate stress, 76- 100: Severe stress

The pre test stress assessment was done in both groups using the self administered stress rating scale. Then the intervention was given only to those in the experimental group for a period of 10 days and the post test stress was assessed in both the groups.

The data was compiled and analysed by descriptive and inferential statistics such as frequency, percentage distribution, paired 't' test, unpaired 't' test and chi- square test.

Results and Discussion

As per the table-1, the baseline data reveals that in both the experimental and control group, majority (54% and 72% respectively) of the samples were of 15 years. The highest (54%) samples in the experimental group were females, whereas males were in majority (62%) in the control group. All the samples in the experimental group were Muslims and 50% of the samples in the control group were Hindus. The data in figure-1 reveals that, in the experimental group, equal (22%) numbers of samples were second and third born and in the control group, majority (42%) of the samples were second born. As per the figure- 2, 56% samples of the experimental group had more than 2 siblings, when compared to the control group who had only 6% of the samples with more than 2 siblings. As shown in the figure- 3, majority of the samples in both the experimental and control groups had a monthly family income of less than 10,000 rupees. In both the experimental and control group majority (68% and 76% respectively) of the samples belonged to the nuclear families. As shown in table-2 highest (90%) samples in the control group were residing at home, however the experimental group also consisted 88% of the samples who were residing at home.

Distribution of samples according to the level of academic stress: Both the experimental and control group had maximum (86% and 92% respectively) samples with mild stress levels, also 14% and 8% samples in either groups had moderate stress levels.

Table-1
Frequency and Percentage Distribution of Samples according to Age, Gender and Religion, n= 100

Variables	Experimental Group		Control Group	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Age in years				
a) 14	23	46	14	28
b) 15	27	54	36	72
Gender				
a) Male	23	46	31	62
b) Female	27	54	19	38
Religion				
a) Hindu	0	0	25	50
b) Christian	0	0	8	16
c) Muslim	50	100	17	34

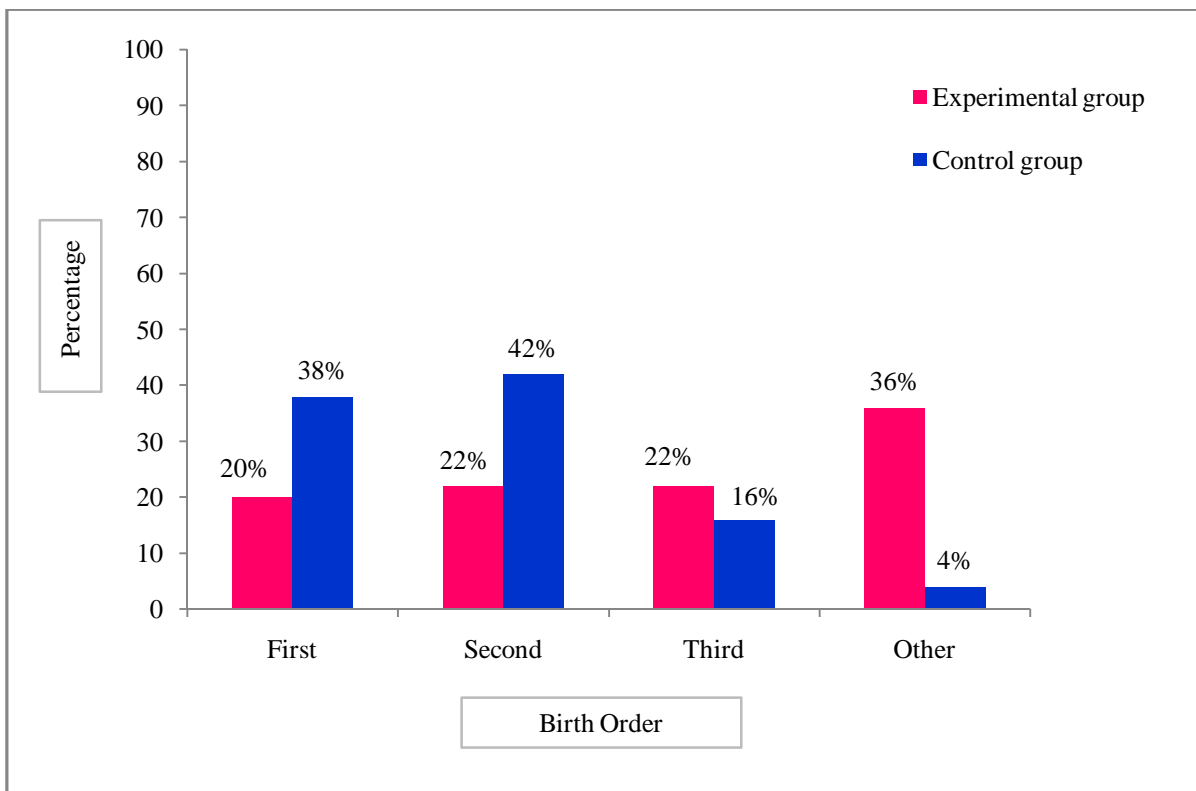


Figure-1
Percentage Distribution of Samples according to Birth Order

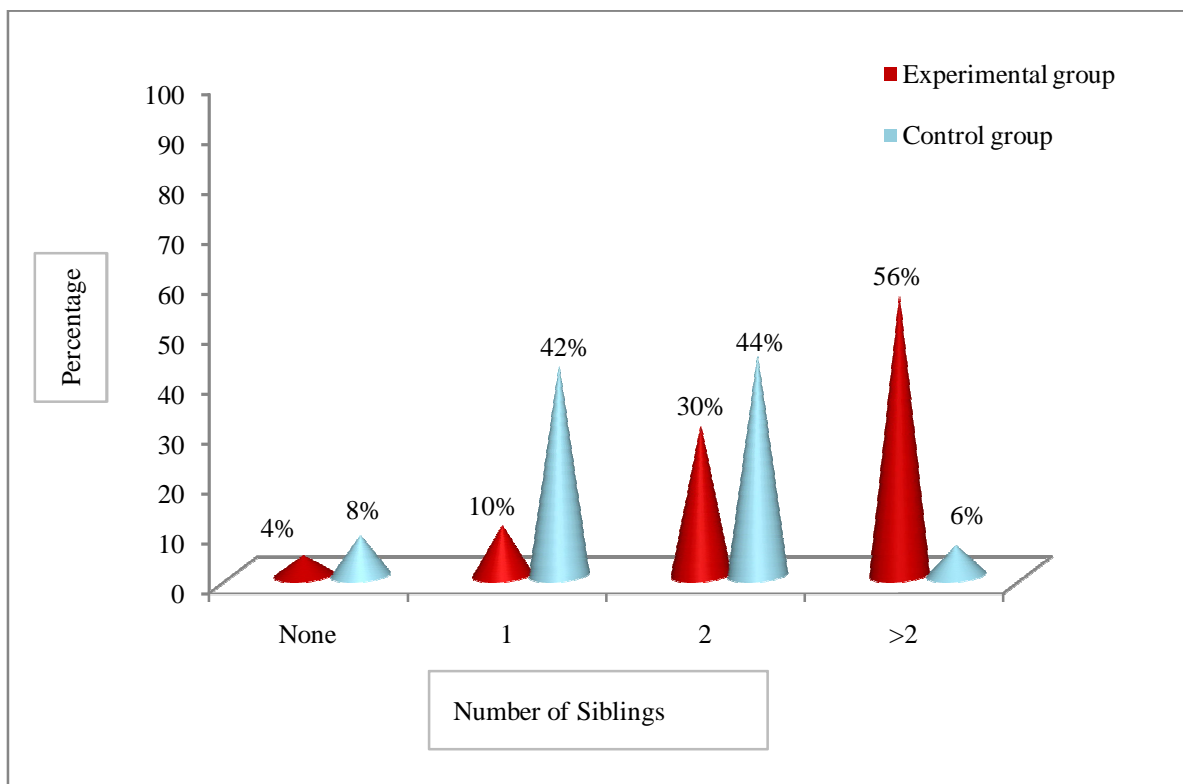


Figure-2
Percentage Distribution of Samples according to the Number of Siblings

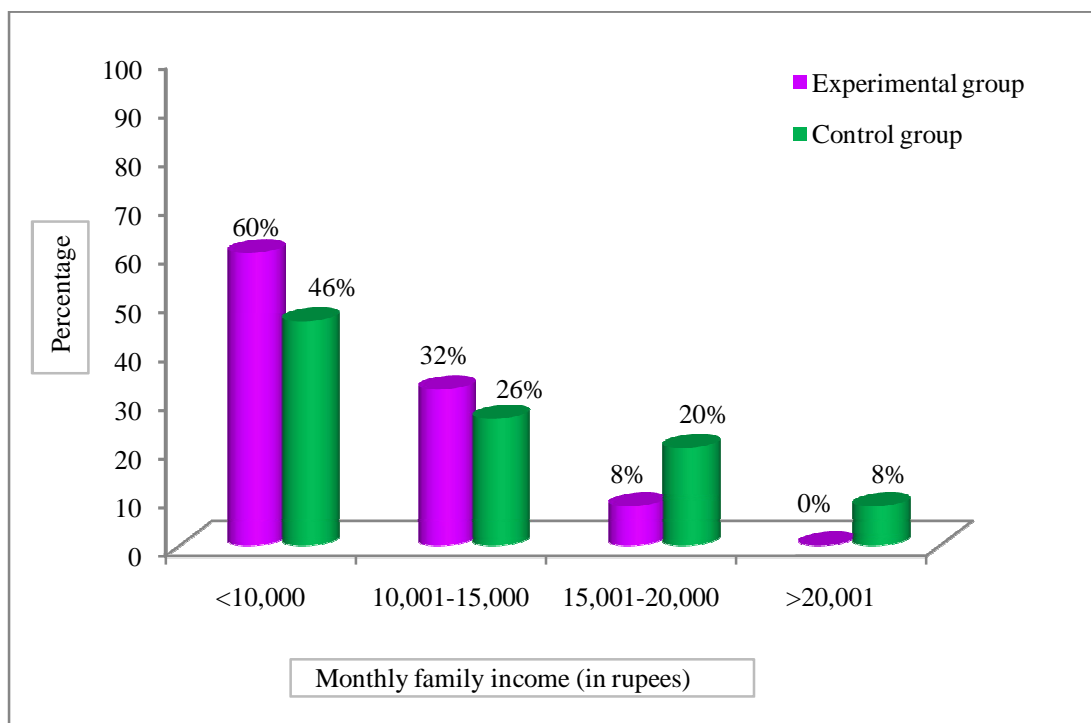


Figure-3
 Percentage Distribution of Samples according to Monthly Family Income

Table-2
 Frequency and Percentage Distribution of Samples according to the Type of Family and Area of Residence, n=100

Variables	Experimental Group		Control Group	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Type of family				
a) Nuclear	34	68	38	76
b) Joint	16	32	12	24
Area of residence				
a) Hostel	6	12	5	10
b) Home	44	88	45	90

Effectiveness of Jacobson’s progressive muscle relaxation on academic stress: As per the data in table- 3 and table- 4, the mean post test stress scores in the experimental group were found to be lesser than the mean pre test stress scores ($35.76 \pm SD$). However, the mean post test stress scores in the control group were found to be higher than the mean pre test stress scores ($38.16 \pm SD$). This indicated that the intervention was effective in reducing the level of academic stress. In order to find the significant difference within the group, paired ‘t’ test was computed for experimental group ($t'_{(49)}= 5.27$) and for control group ($t'_{(49)}= -4.85$). Further in order to find the statistical difference between the 2 groups, unpaired ‘t’ test was

computed ($t'_{(98)}= 7.15$). These results showed that, there was significant difference in the post test stress scores of the experimental and control groups at $p < 0.05$ level. This indicated that Jacobson’s Progressive Muscle Relaxation Technique was effective in reducing the level of academic stress.

As per the data in table- 5, there was no association found between the pre test level of academic stress and the selected demographic variables, since the calculated value was lesser than the table value at 0.05 level of significance. It is thus concluded that the demographic variables are independent of the pre test stress levels among the adolescents.

Table-3

Mean pre test and post test stress scores, Mean difference, Standard deviation, Standard error and Paired ‘t’ test within the experimental and control group, n= 100

Group	Mean pre test stress score	Mean post test stress score	Mean difference	SD	SE	df	Paired ‘t’ test
Experimental group	38.36	35.76	2.60	3.49	0.49	49	5.27*
Control group	36.22	38.16	-1.94	2.83	0.40	49	- 4.85

$t_{(49)}=2.00$; $p < 0.05$, * Significance

Table-4

Mean pre test and post test stress score, Mean difference, Standard deviation, Standard error and Unpaired ‘t’ test between the two groups, n=100

Group	Mean pre test stress score	Mean post test stress score	Mean difference	SD	SE	df	Unpaired ‘t’ test
Experimental group	38.36	35.76	2.60	3.49	0.64	98	7.15*
Control group	36.22	38.16	-1.94	2.83			

$t_{(98)}=1.98$; $p < 0.05$, * Significance

The findings of the study are consistent with a correlational study conducted on academic stress and self- esteem. Among the 96 subjects involved in the study, gender was in equal proportion, majority (79.2%) of the students were from nuclear family. There were 34.4% of the subjects having three siblings and 26.1% were having two siblings. Majority (54.2%) of the subjects were first born and monthly family income laid between 10,001 -20,000 rupees⁷.

The findings of the study are supported by a quasi experimental study conducted in order to assess the effectiveness of pranayama on stress among 70 adolescents in the selected pre university colleges at Mangaluru. The study observed that, in the experimental group 65.7% adolescents had severe stress and 34.3% had moderate stress, and in the control group 60% of the adolescents had severe stress and 40% had mild stress¹⁰.

The study findings are consistent with a study organised to assess the efficacy of progressive muscle relaxation over autogenic relaxation on stress among the alcoholics of selected deaddiction centres of Mangaluru. The study showed that the mean post test stress score of progressive muscle relaxation ($x = 58.45$) was lower than the mean post test stress score of autogenic relaxation ($x = 65.10$). The calculated t value ($t = 2.154$) was greater than the table value ($t_{38} = 1.96$) at 0.05 level of significance, which revealed that progressive muscle relaxation was more effective in reducing stress among alcoholics¹¹.

The findings are supported by a study organised to assess the efficacy of progressive muscle relaxation over autogenic relaxation on stress among the alcoholics of selected

deaddiction centres of Mangaluru. The study showed that there was no association between pre test level of stress with demographic variables like education, occupation, family income and locality¹¹.

Conclusion

As the present study findings have revealed that Jacobson’s progressive muscle relaxation has reduced the academic stress, it could be made use by all the school authorities, nursing and medical personnel to help the students to deal with their stress. Hence the teachers must have adequate knowledge about the various relaxation techniques and their benefits, and in turn must take care of the psychological aspects of their students in order to improve the quality of life and also their academic performance.

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Table-5
Association between pre test level of academic stress and selected demographic variables, n=100

Demographic variables	Pre test stress level		df	Chi- square (χ^2)
	< Median	\geq Median		
Age in years				
a) 14	20	20	1	0.24
b) 15	27	33		
Gender				
a) Male	27	28	1	0.22
b) Female	20	25		
Religion				
a) Hindu	12	14	2	0.76
b) Christian	6	4		
c) Muslim	29	35		
Birth order				
a) First	14	15	3	1.32
b) Second	17	15		
c) Third	7	12		
d) Other	9	11		
Number of siblings				
a) 0	1	6	3	3.37
b) 1	15	11		
c) 2	17	20		
d) >2	14	16		
Monthly family income (in Rupees)				
a) <10,000	25	27	3	0.17
b) 10,001- 15,000	13	16		
c) 15,001- 20,000	7	8		
d) >20,001	2	2		
Type of family				
a) Nuclear family	31	41	1	1.61
b) Joint family	16	12		
Area of residence				
a) Hostel	4	7	1	0.56
b) Home	43	46		

$\chi^2_{(1)} = 3.84$, $\chi^2_{(2)} = 5.99$, $\chi^2_{(3)} = 7.82$; $p < 0.05$

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