



Effectiveness of Aerobics Exercises on Academic Stress among Higher Secondary Students

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Abstract

Background

Adolescence is a very important and productive period of life as well as a period of stress and crises. Higher secondary students are more prone to the academic stress because of academic pressure and lack of parental support. Aerobic exercises are a fruitful means of coping with stress. It can help students to deal with stress symptom and improve self-confidence and academic performance.

Objectives

To evaluate the effectiveness of aerobic exercise on academic stress among higher secondary students.

Materials and Methods

Quantitative approach with time series

research design was used in the study. Purposive sampling technique was used to collect data from 50 higher secondary students of Sanatan Dharam Inter college, Race course. Four weeks aerobic exercise was conducted for 45min for 5 days per week. Data were collected by using Standardized Academic Stress Scale.

Results

A significant reduction in academic stress with mean difference (MD) of 27.08 was found significant ($p=0.001$). Calculated ‘f’ value is 61.70 which is greater than tabulated value 3.05 which was found significant ($p=0.001$).

Conclusion

This study concluded that the aerobic exercises are effective in reducing academic stress.

Introduction

School is an educational institute where children are prepared to become responsible citizen of tomorrow. The name of school includes primary for young children and higher secondary to teenagers, who have completed primary education. Higher secondary also known as senior secondary, it refers to the education imparted in eleventh and twelfth standard in school. Higher secondary level education is important for further studies and getting admission in colleges. The pressure of studying and performing well is usually higher among higher secondary students which is one of the leading academic stresses on them.¹

Academic stress is the pressure which students face on their mind due to inability to fulfill

Academic demand. Teachers and parents have more expectation from the children but this expectation increase the pressure among students and students feel more stressed. These stresses decrease the daily activities of a student's life and increase the chance of stress, anxiety and depression related disorders.²

Academic stress is mostly found in school students who are living away from their homes for the first time. According to Auerbach and Grambling (1998) stress can lead to serious health problems if it is not managed effectively. Chronic stress can lead to both physical illness and mental illness.³

According to the National Crime Records Bureau (2018), there is one student every hour (40 seconds) that commits suicide in India. The bureau registered 2 % of students who committed suicide due

to failing in examinations and an 80% rise in suicide rates. Suicides among students have been increasing every year.⁴

Poonam 2019 conducted a descriptive study in Sant Kabir Academy school in Dehradun, UK.to assess the academic stress and coping strategies among 150 higher secondary students.The result reveal that 76 adolescents were having mild stress, 46 were having slight stress, 28 were having moderate stress and no one having extreme stress. The study concluded that every student having some form of academic stress.⁵

Physical activities are necessary as it increase amount of dopamine, serotonin and endorphins into the bloodstream which transmit pleasure signals to the brain and help to cope with stress. Aerobics is a form of physical exercise that can be performed in school setting that combines rhythmic aerobic exercise with stretching and strength training routine with a goal to improve all elements of fitness. It can be done at least 3 times a week and all sessions take about 20-30 minutes. Aerobic can helps our body and minds relax.⁶

V. Valarmathil , R.Tamil Selvaarasanm1 and A. Judie conducted a Quasi experimental study among 268 in selected school in Tamil Nādu having mild to severe stress and intervention (aerobic dance movement) for One month intervention was given. The study concluded that the comparison of posttest of study and control group mean and SD value of adolescent's academic stress was found to be statistically highly significant with $t= 6.14$ at $p<0.0001$ **Error! Bookmark not defined.Error! Bookmark not defined.**

Material and Methods

In this Quasi experimental study 50 higher secondary enrolled at Sanatan Dharam Inter College students were selected by applying Cochran’s sample size formula and purposive sampling technique. The inclusion criteria for the study were subjects studying in 11th and 12th classes and available and willing to participate in this study. The subjects who were already undergone aerobic exercises programme, orthopaedic related problems, and any systemic illness were exclusion criteria. Standardized academic stress scale was used to assess academic stress level. Then pre-test was taken and intervention for 2 week was given and post-test 1st was conducted after that again 2-week intervention given and then post-test 2nd conducted. Then the investigator gave aerobic exercises for approximately 45min, 5 days in a week. The study was analysed through ANOVA and Post hoc analysis.

Instrument/Tool

Tool consists of Section A and section B, Section A consist of socio demographic data such as

Age in years, gender, education status, occupation of parents, Monthly income of parents,

Percentage obtained in 10th exam, Type of family, Average self-study time per day, Leisure activities carried out in a day, Dietary pattern, and Mother education. Section B Section consist of Standardized Academic Stress scale which was originally developed by Kim (1970) and adopted to Indian conditions by Rajendran and Kaliappan (1990).

Statistical Analysis

Frequency and percentage distribution was used to analyses the demographic variables and level of stress, Mean and standard deviation calculated. ANOVA analysis was performed to compare mean stress level between pre- test and post - test after intervention among higher secondary students post hoc analysis was performed to find MD in academic stress score between the three levels of assessment.

Table 1: Comparison of mean stress level between pre-test and post-test after intervention among higher secondary students

N=50

Stress Level	Mean ± SD	F-Value	DF	P-Value
PRE-TEST	67.72±15.104	49.928	48	0.01
POST TEST 1	46.36±13.091			
POST TEST 2	40.64±9.785			

The hypothesis is tested at $p \leq 0.05$

Table 2: Post-hoc analysis (pair-wise multiple comparison) of stress level between three levels of assessment.

N=50

Stress Level	Mean Difference	P-Value
PRE-TEST - POST TEST 1	21.36	0.001
POST TEST 1 - POST TEST 2	5.72	0.002
PRE-TEST - POST TEST 2	27.08	0.001

The hypothesis is tested at $p \leq 0.05$

Discussion

In this study, fifty higher secondary students who were having mild to severe academic stress showed significant improvement in stress with a MD of 27.08 following 4 weeks of aerobic exercise. The results of present study were close to the study conducted by Valarmathi it revealed that effectiveness of aerobic dance movement therapy on academic stress was found to be statistically significant with $t = 6.14$ at $p < 0.0001$.

Ethical Consideration

The proposed study was conducted after the approval of the dissertation committee of state college of nursing. Formal approval was obtained from the Chief Education Officer and Principal of Sanatan Dharam Inter College. Informed written consent was obtained from each subject before starting the data collection. Assurance was given to the study subjects regarding the confidentiality of the data collected.

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