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Effect of exercise on anxiety and depression of college students

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Abstract

The purpose of this study was to investigate the effect of exercise on anxiety and depression of college students. A subject this study 90 untrained male and female college students were randomly selected from Rajarshi Shahu College Pathri, Dist. Aurangabad (Maharashtra), India for the present study. The subjects were randomly assigned in equal two groups (control group (N=45) and intervention group (N=45). Intervention group (30 male and 15 female students) participated in a 12 week physical fitness programme with a frequency of 3 session per week and 60 minutes per session but control group did not participated in any physical activity. The average age of students in the intervention and control groups was 20.47 and 21.19 years respectively. Data were collected from students using a Self-rating Depression Scale (SDS) for depression, it consists of twenty items and Self-rating Anxiety Scale (SAS) was used for test to anxiety. The t-test was used to test the effect of anxiety and depression level between intervention and control group. The significance level was determined as $p < 0.05$. The result of the study reveals that there was significant difference in 0.05 levels effect of exercise on anxiety and depression among the college students.

Keywords: Exercise, anxiety, depression, students

1. Introduction

With the speedy development of society and economy, the importance of physical workout for physical and psychological health has step by step infiltrated into the guts of the lots. As a vital part of a healthy mode, exercise has typically been accepted by individuals and has become a vicinity of their daily routine or habit ^[1]. Regular exercise is beneficial to the physical, psychological and social health of a person ^[2, 3]. Regular physical activity decreases anxiety and depression as well as may be used as adjuvant treatment of these conditions and improved health ^[4, 5].

Psychological problem such as anxiety and depression affects a life of million people in the world. It has relationship with death increase and health service expenses ^[6]. Anxiety is characterized as a strongly negative emotion with an element of fear, such as cognitive, neurobiological and behavioral manifestation. Anxiety associate unpleasant mood characterized by thoughts of worry is associate adjective response to perceived threats which will became a maladjusted mental disorder if it becomes severe and chronic. ^[7] The meaning of anxiety in Persian is restlessness and confusion ^[8]. In the most of psychological texts it is also synonym with words such as stress and excited ^[9]. In fact anxiety is a kind of independent exciting which is accompanied feeling and receiving mental, thus anxiety has each psychological and biological aspect and each aspect seem nose to nose once he is anxious.

Depression is a term used for a variety of psychophysiological status. Depression can be a primary psychological disorder, symptomatic of a primary psychological disorder or it may be secondary psychological disorder ^[10]. Depression could be a state of low mood and aversion to activity that which will have an effect on a person's thoughts, behavior, feelings and physical well-being. Depression is a syndrome with symptoms, a feeling or a state of depression in the deep gloom of thought, slowdown and recession on speech and movements, worthlessness, smallness, weakness, reluctance, pessimism, slowdown on thoughts and feelings with physiological functions ^[11]. Depression is a serious medical illness caused by a disorder of the

brain, due to genetic, environmental, psychological and biochemical factors. It might be resulted from a combination of factors, as well as endogenous causes like a chemical imbalance within the brain, a case history of depression, personal or social issues, stressful situations, or traumatic events such as assault or the death of a loved one. [12, 13, 14, 15, 16]

Depression is caused by a combination of genetic, biological, environmental, and psychological factors [17]. Now a day, much attention should be done to the methods of treating mental disorders. Depression is usually treated with antidepressants or psychotherapy; however some individuals might like various approaches like exercise. There are a number of theoretical reasons why exercise may improve depression [18]. Depression, consisted because of several reasons, should be treated to person live physically, spiritually, mentally in an exceedingly healthy method, and within the period of education and learning, communication begins in exceedingly natural surroundings [19].

Physical exercises have positive effect a decreasing psychological pressure like as anxiety and depression. Also taking part in physical activities has positive result on feeling good and psychological state. Anxiety and depression is related psychological problems which and decrease by exercises and physical activities and finally the clinical observation shows physical exercises as a treating method has positive effect on men and women of any age [14].

The psychological health of college students is the foundation of their personal happiness and social service. However, the epidemiological data show that the number of college students with psychological disorders is increasing. At present, physical exercise as a means of psychological treatment and mental health has become a common method at home and abroad. Studies have shown that exercise is an effective way to maintain or promote psychological state and eliminate mental state. This study reports the effect of exercise on anxiety and depression state of college students.

2. Review of Literature

Literature related to the present study has been presented as follows:

Lijun Wang *et al.*, (2018) [20] conducted study to determine the effect of different exercise on anxiety and depression of college students. Total 218 non-professional sports college students were randomly selected as subjects from Tianjin urban construction university. The object of study the numerous depressions and anxiety scores than the traditional threshold, they were every which way divided into group A (aerobics group, 60), group B (basketball exercise group, 82) and group C (table tennis exercise group, 76). They were concluded that long time to participate in table tennis, badminton and aerobics students anxiety and depression, anxiety and depression symptoms, indicating that the long-term exercise can effectively alleviate and prevent college students depression and anxiety, encourage students to participate in sports, and should be long-term adherence, develop a positive healthy and optimistic attitude.

Faizan Jameel Khanzada *et al.*, (2015) [21] examine physical exercise on anxiety and depression amongst adults. A total 269 individual's ages were 18-45 years completed a self-administered questionnaire to assess the data using simple descriptive statistics. Result showed that association between anxiety levels and exercise was significantly increased in non-exercisers compared to regular exercisers found to be significant ($p=0.015$). Individuals who performed regular

exercise had a lower frequency of depression (28.9%) than non-exercisers (41.8%). Physical exercise was considerably related to lower anxiety and depression frequency amongst the studied adult population.

Menglong Li *et al.*, (2015) [22] studied the effects of exercise dependence on psychological health of Chinese college students. A total of 1601 college students from three universities in Hunan, China, were selected as research subjects. They were concluded that exercise dependence adversely affects the psychological health of college students. Further analysis victimization flat exercise addiction scales ought to be conducted to spot all the negative effects of exercise addiction factors on psychological health.

MD Mochcovitch *et al.*, (2016) [23] conducted study to determine the effects of regular physical activity on anxiety symptoms in healthy older adults. They were reported that regular physical activity may be effective for improving anxiety symptoms in older adults. More studies are needed to identify the ideal physical activity modality, frequency, duration, and intensity for optimizing the positive effects of exercise on anxiety in this population. Guner Cicek *et al.*, (2015) [24] examine the effects of exercise on levels of depression. It was discovered that physical exertion resulted during a low level of depression and also the level of depression was reduced because the exercise time was enhanced. It may be aforementioned that exercise had a positive impact on reducing depression. Peoples should be motivated and inspired for having the habit of normal exercise to boost the standard of life.

Narris R. R. *et al.*, (1999) [25] associate experiment on anxious and depressed person and also the result showed that metabolism exercise for 2 time during a week, whenever for twenty five to half-hour that lasted ten weeks caused fitness of body and reduce in anxiety. Another analysis by Gerra G. *et al.*, (2000) [26] showed that aerobics has anti-anxious impact. Peluso M. A. *et al.*, (2005) [27] investigated the connection between physical exercises in treating and hindrance of physical and mental diseases like anxiety, the result recommended the positive impact of normal exercise on mental state.

Takly J. (1993) [28] also reported physical fitness decreases significantly danger of mental disorders of both gender. Regular exercising strengthens the body and effects on feelings so life stress taken positively and bearded easily. Taylor S. (2005) [6] showed that young athletes who wore thinking, they will lose and more anxious than others. The result of Lantz C. D. *et al.*, (2007) [29] researchers indicated that those who exercise enough have less anxious.

3. Material and Method

3.1 Subject

For the purpose of this study, 90 untrained male and female college students were randomly selected from Rajarshi Shahu College Pathri, Dist. Aurangabad (Maharashtra), India. The subjects were randomly assigned in equal two groups (control group (N=45) and intervention group (N=45). Each group 30 male and 15 female students also included. The average age of students in the intervention and control groups was 20.47 and 21.19 years respectively.

3.2 Procedure

The participated attended training session's series for 12 week physical fitness program with a frequency of 3 sessions per week and 60 minutes per session. The control groups were free to do any activity during six weeks' time as the team did

not have any training sessions. The pre-test data collected before the physical fitness exercise program and post-test data collected after finish physical fitness exercise program.

3.3 Measuring Tools

Self-rating Depression Scale (SDS) constructed by Zung KM (1965) [30] was used to test the depression of students. There were 20 items in the main statistical indexes. The scores of each item were added to the coarse score according to the scale of grade 1 and 4. Multiply by 1.25 to get a guaranteed score. There was a positive correlation between the depression score and the depression tendency, and the critical value was a standard score of 53. Self-rating anxiety scale (SAS) constructed by Zung KM (1971) [31] was used to test student's anxiety. The main statistical indexes, scoring criteria and statistical methods were the same as those of depression self-rating scale. There was also a positive correlation between anxiety score and anxiety tendency, and the critical value was 50 points.

3.4 Statistical Method

The collected data in this study were analyzed by statistic program version 25.0 of the Statistical Package for Social Science (SPSS) software. Descriptive Statistic (Mean and Standard Deviation) and Independent 't' test was applied to comparison of groups. The level of significance was set as 0.05 levels ($p < 0.05$).

4. Results

This research aims to investigate the effects of exercise on anxiety and depression among college students. The results of descriptive analysis, comparison the effect of exercise on anxiety and depression between control and intervention group also.

Table 1 shows that the comparison was statistically significant in Anxiety from pre-test (Mean=54.24, SD=2.62) to post-test (Mean=52.15, SD=1.60). According to the result there is a significance difference in Anxiety among college students which is calculated by 't' value ($t=6.30$, $df=44$).

Table 1: Mean and Standard Deviation of Pre-test & Post-test Anxiety data for Control and Intervention Groups

Variable	Control Group (N=45)		Intervention Group (N=45)		P-value	T-value
	Mean	SD	Mean	SD		
Pre- test Anxiety	54.24	2.62	54.01	2.31	0.477	0.71
Post- test Anxiety	54.24	2.62	52.15	1.60	0.001	6.30

$P < 0.05^*$

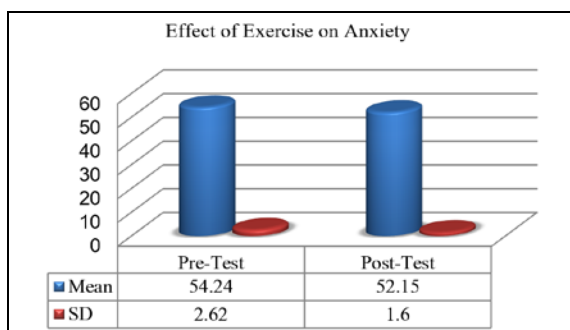


Fig 1: Difference of Mean and SD between Control and Intervention groups.

Table 2 also shows that the comparison was statistically significant in Depression from pre-test (Mean=53.61, SD=2.18) to post-test (Mean=51.02, SD=1.70). According to

the result there is a significance difference in Anxiety among college students which is calculated by 't' value ($t=9.06$, $df=44$).

Table 2: Mean and Standard Deviation of Pre-test & Post-test Depression data for Control and Intervention Groups

Variable	Control Group (N=45)		Intervention Group (N=45)		P-value	T-value
	Mean	SD	Mean	SD		
Pre- test Depression	53.61	2.18	53.46	2.18	0.606	0.51
Post- test Depression	53.61	2.18	51.02	1.70	0.001	9.06

$P < 0.05^*$

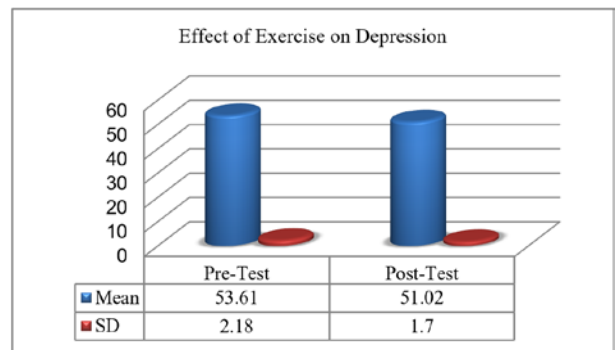


Fig 2: Difference of Mean and SD between Control and Intervention groups.

The result analyzed by paired T-test on effect of exercise on anxiety and depression show on overall significant after training or physical activity program.

5. Discussions

One of the aims of this research was to determine whether or not the exercises will effect on anxiety and depression. The findings of this study show that there was significant difference in anxiety and depression in college students. Similar results were found in previous work carried out by Lijun Wang *et al.*, (2018) [20] conducted study to determine the effect of different exercise on anxiety and depression of college students. They were reported that long time to participate in table tennis, badminton and aerobics students anxiety and depression, anxiety and depression symptoms, indicating that the long-term exercise can effectively alleviate and prevent college students depression and anxiety, encourage students to participate in sports, and should be long-term adherence, develop a positive healthy and optimistic attitude.

Faizan Jameel Khanzada *et al.*, (2015) [21] examine physical exercise on anxiety and depression amongst adults. They were also stated that association between anxiety levels and exercise was significantly increased in non-exercisers compared to regular exercisers found to be significant. Individuals who performed regular exercise had a lower frequency of depression than non-exercisers. Physical exercise was considerably related to lower anxiety and depression frequency amongst the studied adult population. MD Mochcovitch *et al.*, (2016) [23] also conducted study to determine the effects of regular physical activity on anxiety symptoms in healthy older adults. They were reported that regular physical activity may be effective for improving anxiety symptoms in older adults. Guner Cicek *et al.*, (2015) [24] examine the effects of exercise on levels of depression. It was determined that workout resulted in a very low level of depression and also the level of depression was reduced because the exercise time was magnified. It is often said that

exercise had a positive result on reducing depression. Findings of Narris R. R. *et al.*, (1999) ^[25] an experiment on anxious and depressed person and therefore the result showed that metabolic process exercise for 2 time in a very week, whenever for twenty five to half-hour that lasted ten weeks caused fitness of body and reduce in anxiety. Another analysis by Gerra G. *et al.*, (2000) ^[26] showed that cardiopulmonary exercise has anti-anxious impact. Peluso M. A. *et al.*, (2005) ^[27] investigated the connection between physical exercises in treating and bar of physical and mental diseases like anxiety, the result advised the positive impact of standard exercise on psychological state. Takly J. (1993) ^[28] also reported physical fitness decreases significantly danger of mental disorders of both gender. Regular exercising strengthens the body and effects on feelings so life stress taken positively and bearded easily. Taylor S. (2005) ^[6] showed that young athletes who wore thinking, they will lose and more anxious than others. The result of Lantz C. D. *et al.*, (2007) ^[29] researchers indicated that those who exercise enough have less anxious.

6. Conclusions

According to the results, it can be concluded that regular exercise can cause gaining in physical and mental health and appropriate physical activity can maintain confidence and also one of the ways to control and treat anxiety and depression in this vulnerable people, especially regular and aerobic exercises for example, long running, walking, swimming and cycling that can be almost done a long period of time and lead to psychological changes in the body and reduce stress-induced reactions.

Therefore according to lower psychological problems in college students, it could be suggested that students make great use of physical activity as a good means of decreasing anxiety and depression also.

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