Decreasing Depression By Improving The Level Of Self-Esteem In A Tennis Training Program For Female University Students
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ORIGINAL ARTICLE

DECREASING DEPRESSION BY IMPROVING THE LEVEL OF SELF-ESTEEM IN A TENNIS TRAINING PROGRAM FOR FEMALE UNIVERSITY STUDENTS

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Abstract

Objectives: **In general, sports activities can improve the psychological, physical and cognitive conditions of people. Therefore, the aim of this study is to decrease depression by improving the level of self-esteem of female university students in a regular tennis training program.** ***Methods:*** **A total of 60 students participated in the study and were randomly assigned to an experimental and control group. Beck Depression Inventory and Rosenberg Self-esteem Scale were used to determine the participants' scores of depression and self-esteem respectively. A two-way repeated measure analysis of variance (ANOVA) was used to compare the two groups.** ***Results:*** **Participants in the intervention group took part in the tennis training program improved in self-esteem and reported significantly less depression compared with the control group. Post-test results confirmed the effectiveness of a tennis training program in decreasing depression and improving self-esteem levels of the university students.** ***Conclusions:*** **This study highlights the effectiveness of a relatively safe and inexpensive tennis program to improve mental health.** ***ASEAN Journal of Psychiatry, Vol. 18 (1): January – June 2017: XX XX.***

Keywords: Tennis Exercise, Depression and Self-esteem

Introduction

Depression is a condition which involves body, mood, and thought [1]. It has been described as causing negative effect, which varies in frequency, intensity, and duration of symptoms [2,3]. Symptoms of depression include sadness, lack of energy, memory loss, boredom, emptiness, hopelessness, worthlessness, helplessness and loss of interest in social activity [4]. Many people experience "feeling blue" from time to time, and the term depression commonly describes persistent negative affect or a loss of energy or interest in daily activities [5-7].

Rosenberg (1965) found that people with low self-esteem have greater levels of anxiety than those with higher self-esteem [8]. A link was also established between self-esteem and depressive mood [8-12]. Self-esteem is a favorable self-evaluation and involves both cognitive and affective features that affect one's thoughts and mood [13]. Self-esteem is also defined as an aspect of self-concept, where people place either a positive or a negative judgment on their abilities and perceptions of self [14,15]. Because higher self-esteem is correlated with lower levels of depression [16], it stands to reason that improving self-esteem is an important factor in decreasing depression. Studies showed that physical activity has a significant effect on self-esteem [17,18].

In addition to the physiological benefits of exercise, many psychological benefits have also been reported [19]. Physical well-being is regarded as a protective factor and physical activity is a coping strategy for those showing

symptoms of depression [20]. Activities that improve athletic skills, behavioral self-control, and social skills also enhance self-esteem and counter depressive features [20]. Physical activity is correlated with a range of health benefits while its absence can have deleterious effects on health and well-being [21,22]. Physical activity reduces depressive syndromes [23-26], as does exercise [27], From the perspective of depression and self-esteem, depression decreased self-esteem [28], and higher self-esteem had a significant negative effect on the severity of depression [29]. However, lower self-esteem has been strongly related to depression in negative direction [30, 31]. Historically, exercise was a way used to cope with depression [32,33], and it has also been shown to increase self-esteem [18,33-35]. Socially, interacting with people and improving physical appearance by participating in sport can help to promote level of healthy self-esteem.

Low self-esteem is not only a symptom of depression but also an associated feature of a wide range of other clinical conditions, such as learning disorders, social phobia, and hyperactivity disorder [36,37]. In the sociometer theory [38], individuals have a fundamental need for "belongingness". This theory states that self-esteem is a sociometer that serves as a subjective monitor of the extent to which a person is valued as a member of desirable groups and relationships. When people perceive their relational value as low, their self-esteem should be equally low [37]. Therefore, developing self-esteem may help to overcome psychological disorders [39]. In the light of the information above, the purpose of this study was to decrease depression by improving the self-esteem level of female university students in a regular tennis training program.

Methods

Participants

In the first phase, participants were chosen from different programs at a university in Turkey. Participants ranging in age from 18 to 21 years old, were randomized into two groups (intervention group, n=30; Mean age = 18.93 ± 5.8 and control group, n=30; mean age = 19.20 ± 1.09) by using a random number generated using Excel computer software. Economic income, levels of the participants and other demographic variables were not related to the purpose of the study, therefore, were not investigated.

Procedure

Participants were presented with the research protocol and asked to bring a medical clearance to ensure safe participation in a tennis training program. Participants in the intervention group signed the consent form to participate. Participants were assured that their records would be kept confidential. The tennis exercise program consisted of 60-min sessions for 3 days per week for 8-week and included jogging, sprinting, jumping rope, and jumping jacks. Each session began with a 5- to 15-min aerobic warm-up and dynamic stretches, continued with a 30-minute tennis exercise, and ended with a 5- to 15-min cool-down. During this time, the control group continued their daily activities without participating in any formal exercise programs. Throughout the experiment period, the weekly attendance at the tennis training program was recorded by the instructor. The tennis training program was performed at outdoor tennis courts of the university. The program lasted for 8-weeks. It was supervised by an instructor to ensure proper exercise intensity. Consent from Research and Ethics Committee of the university was obtained, and all responses obtained in the present study were made anonymous.

Beck Depression Inventory (BDI)

The BDI is a 21-question multiple-choice self-report inventory developed by Beck (1961) [40] for determining the severity of depression. When the test is scored, a value of 0 to 3 is assigned for each answer and the total score is compared to determine the depression's severity. BDI scores range from 0 to 63. Scores between 0 and 9 indicate minimal depression; scores between 10 and 18 indicate mild depression; scores between 19 and 29 indicate moderate depression; and scores between 30 and 63 indicate severe depression. Test-retest reliability ranges from 0.86 to 0.93 [41], and a coefficient alpha of

0.87 has been reported in the study of Beck et al. (1988) [42]. The Beck Depression Inventory (BDI) was adapted to Turkish by Hisli (1989) [43] and reported that (BDI) Cronbach alpha coefficients were found to be 0.80 for the Turkish version.

The Rosenberg Self Esteem Scale (RSES)

The RSES is a 10-question inventory developed by Rosenberg (1965) [8] for determining the level of self-esteem. Score of the RSES was calculated by first reverse coding the negatively worded items: 3, 5, 8, 9, 10 (Strongly Agree = 0, Agree = 1, Disagree = 2, and Strongly Disagree = 3), coding the positively worded items: 1, 2, 4, 6, 7 (Strongly Agree = 3, Agree = 2, Disagree = 1, and Strongly Disagree = 0), and then summing all the items 1 - 10 to obtain a total score. The RSES score ranges from 0 to 30 with higher scores indicating higher self-esteem. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem, and scores above 25 suggest high self-esteem. A new variable for RSES was created and RSES scores were categorized into ordinal data: 1 = low self-esteem or scores below 15; 2 = normal self-esteem or scores 15 - 25; 3 = high self-esteem or scores above 25 [44]. The Rosenberg Self Esteem Scale (RSES) was adapted to Turkish by Cuhadaroglu (1986) [45]. Cuhadaroglu reported test-retest reliability coefficients of 0.71 during a 4-week period in the Turkish version [45]. One month after the first application of the test, testing was performed a second time. In second application of the RSES, the correlation reliability coefficients between the points are 0.75 [46,47].

Data Analysis

All participants in the study were assigned code numbers for data entry and analysis. ID codes were given to participants to match the first and second tests. The data were analyzed using SPSS 16.0 Package Program. Descriptive statistic was used to determine average of the age regarding participants. A two-way repeated measures analysis of variance (ANOVA) was used to compare the two groups regarding depression and self-esteem. The level of significance was set at 0.05.

Results

As shown in Table 1, the intervention group's self-esteem increased significantly ($f(13.90) = p<0.000$) after participating in the tennis training program whereas no statistically significant difference was found between the control group's pre- and post-test scores for self-esteem.

Table 1. Two-way repeated measures analysis of variance in terms of self-esteem in both groups

		Self-esteem					
		Pre-test		Post-test			
	N	Mean	SD	Mean	SD	F	P
Experimental group	30	14.50	1.27	17.80	2.68	13.90	p<0.05
Control group	30	13.93	1.43	14.70	2.11		

As shown in Table 2, the intervention group's depression decreased significantly ($f(39.99) = p<0.001$) after participating in a tennis training program whereas no statistically significant difference was found between the control group's pre- and post-test scores for depression.

Table 2. Two-way repeated measures analysis of variance in terms of depression in both groups

		Depression					
		Pre-test		Post-test			
	N	Mean	SD	Mean	SD	F	P
Experimental group	30	16.13	1.73	12.73	1.20	39.99	p<0.05
Control group	30	15.23	1.94	14.86	1.97		

Discussion

This study demonstrated a decrease in depression by improving self-esteem of female university students by participating in a tennis training program. The results indicate a significant difference in self-esteem and depression levels between intervention and control groups.

The results support the hypothesis that participants in the tennis program would decrease their depression symptoms by improving self-esteem levels. Current literature supports the results of this study. Sonstroem (1984) [48] reviewed the importance, structure and development of self-esteem, and presented a rationale for the influence of exercise on self-esteem. Physical activity was deemed an important factor for improving self-esteem [49-51]. Similarly, a team sports program was designed by Yigiter (2013) [18] and recreational physical activity program was designed by Yigiter and Bayazıt (2014) [52] positively affected the self-esteem of male and female university students aged 18-19. Moreover, Yigiter (2014) [53] reported that regular exercise program had a positive effect on the self-esteem of female university students divided into experimental group, *n* = 40, Mage = 21,52±1, and control group, *n* = 40, Mage = 22,15±1,67. Bowker [54] and Bowker [55] investigated the relationship between sport participation and self-esteem and revealed that sport participation was related to all indices of self-esteem, and this was equally true for adolescent boys and girls. Similar studies show that participants of sport exercise reported higher self-esteem than their non-participating counterparts [56-60].

Regarding the decrease in the experimental groups' level of depression, several studies support this finding. Hassmen (2000) [61] investigated a total of 3403 subjects (1856 women and 1547 men), ranging between 25 to 64 years of age. The results of this cross-sectional study suggest that individuals who exercised at least two to three times a week experienced significantly less depression than those exercising less frequently or not at all. Furthermore, regular exercisers perceived their health and fitness to be better than less frequent exercisers [61]. Finally, those who exercised at least twice a week reported higher levels of sense of coherence and a stronger feeling of social integration than their less exercised counterparts.

Consistent with following studies, the present study confirmed the effectiveness of an activity program in decreasing depression. Strawbridge (2002) [62] revealed that physical exercise was a protective factor on the development of depression. Farmer (1988) [63] reported a reducing effect of regular exercise on depression [63]. In line with that study, Barmi found that depression among non-athletic students is much more frequent than in athletic students [64]. Moghadami (2010) [65] noted that depression among non-athletic principals was more frequent than in athletic principals. The research concludes that being engaged in sport activities and physical exercises may regularly relieve depression [65]. Teychenne (2008) [66] reported that although the dose and domain of physical activity varied across studies reviewed, low or high doses physical activities may be protective against depression [66]. Legrand (2014) [67] examined the possible mediating role of physical self-perceptions, physical self-esteem, and global self-esteem in the relationships between exercise and depression in a group of socioeconomically disadvantaged women with elevated symptoms of depression. Results showed that most of the reduction in depression occurred between Week 2 and

Week 4 while initial improvement in physical self-worth and self-perceived physical condition was observed between baseline and Week 2. These variables can be seen as plausible mechanisms for the effects of exercise on depression [67]. Dunn (2001) [68] revealed that fitness could reduce symptoms of depression. Similar studies also showed that various exercises have positive effects on reducing depression level of the participants, as was the case in our study [69-78].

Several limitations were noted by the researcher in the present study. These limitations should also be noted for similar studies in terms of results and applicability. Only female university students were selected in the study which provides no room for comparison to male university students. The sample used in the present study was small, and it is important to note that a larger sample would provide more reliable findings.

Conclusion

Results of this study compliment established knowledge regarding the positive effects of regular exercise programs on psychological parameters. Tennis is generally a safe and relatively inexpensive sport. In a population of female university students, regular tennis training program had a positive effect on elevating self-esteem and reducing depression levels.

Conflicts of Interest

Authors declared no potential conflicts of interest.

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