

Study of Compare the Efficacy of Group Cognitive-Behavioral Therapy and Exercise on Depression among 14-17 Years Old Adolescents

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ABSTRACT: The present study aimed to compare the efficacy of group cognitive-behavioral therapy and exercise on depression among 14-17 years old adolescent girls in Bastak City. The research method was pretest-posttest with control group. For this purpose, 30 adolescents with depression were selected through Children's Depression Inventory and Depressive Disorder Diagnostic Interview. The subjects were randomly divided into three groups: group cognitive behavioral therapy, aerobic and control groups. The analysis of covariance, independent t-tests and SPSS were used to analyze the results. The results showed that group cognitive-behavioral therapy and aerobic exercise were significantly effective in reducing depressive symptoms at post-test. However, no significant difference was observed between cognitive-behavioral therapy and aerobic exercise groups at post-test. In total, the results suggested that group cognitive-behavioral therapy and exercise are effective in reducing depression in adolescent girls. Thus, these measures can be used by clinicians as a therapeutic intervention.

Keywords: Adolescence, Depression, Group cognitive behavioral therapy, Exercise

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INTRODUCTION

Adolescence is considered as an important step in individual life. At this stage, the adolescents should acquire the necessary skills to achieve mental health and overcome such problems as anxiety, depression, and hopelessness. Depression is manifested rapidly in 14 years old adolescents, particularly in girls [1]. In general, various studies with semiotics diversity during evolution have shown that frequency of depression during adolescence is approximately 7%. At the age of 16, the number of depressed girls is reported twice as depressive boys [2]. Depression is still considered as one main topics of research due to following reasons: substantial emotional, social, and economic load of depression in patients, families and society, estimated annual incidence of depression as 2.9% to 12.6% in the general population and regarding the risk of this disorder throughout individual lives approximately as 17-19 percent [3]. There are several similarities between depression in children and adults. However, several minor symptoms such as social withdrawal and somatic complaints are more common among children and adolescents [4]. Certainly cognitive behavioral therapy approach was studied more than other approaches for treatment of childhood depression. This approach was mostly used for treatment of depression in childhood and adolescence. After decades of application of cognitive behavioral therapy for treatment of depression and anxiety disorders in adults, this kind of treatment is successfully being used for children and adolescents nowadays [5]. Gillham et al. [6] found out that group cognitive-behavioral therapy (CBT) is effective in preventing primary depression symptoms. Logsdon [7] also found out that cognitive therapy is effective in reducing depression in adolescent girls. Oei and Dingel [8] also showed that group cognitive behavioral therapy (GCBT) is useful for treating unipolar depression. Braga et al. [9] also found out that group cognitive-behavioral therapy is an effective for OCD treatment. In CBT, the therapist helps the patient to identify his thoughts, feelings and behaviors. This approach suggests by developing such basic skills, the patients will properly learn new behavioral patterns and strategies to solve their problem. This issue helps the patients to interpret their thoughts, feelings and behaviors reasonably. In this view, living conditions, others and past events do not clarify the problem; however, the perceptions on situation and the way of thinking always put people in a problematic situation. Then, the therapist is responsible for following tasks such as diagnosis and changing those wrong and destructive behaviors, which caused emotional disorders in the patients.

In a study Sajjadi et al. [10] showed hope-center group therapy decrease the depression in girl adolescents.

Exercise also induces a positive mood in short term. Regular exercise can lead to happiness in long term [11]. Short-term effects of exercise arise from the fact that endorphin releases morphine-like chemicals in the brain. The reason behind long-term happiness resulting from exercise lies in the fact that regular exercise reduces depression and anxiety and increases the speed and accuracy of work. Exercise probably regulates negative mood caused due to stress. As it was assumed, physiological stress responses were different for three exercise groups. It was reported that active athletic participants less reacted to stressors. In addition, their behavioral patterns fluctuated less than average.

MATERIAL AND METHOD

This is an applied research. The research method was pretest-posttest with control and experimental groups (CBT group and exercise groups). The statistical population included female students in secondary school in Bastak City. They were asked

to fill out the CDI questionnaire. Those subjects whose scores were higher than 22 (the best and most optimal cut score based on the studies conducted by Mohammadi et al. [12] were isolated. Then, clinical depression interviews were conducted by the researcher. Then, those subjects with following conditions were selected: diagnosed as depressed, did not receive any treatment and did not participate in sport classes. The sample consisted of 30 subjects. For each experimental group, 10 subjects were randomly selected using a lottery. Then, 10 subjects were categorized as cognitive-behavioral therapy group while 10 subjects as exercise group and 10 patients as control group. The control group received no intervention.

The first group underwent 12 two-hour weekly sessions of cognitive-behavioral therapy based on Levinson protocol. A workbook was also given to every subject for practice at home, which was reviewed at the next meeting. The title and summary of each session were as follows:

Session I: depression and social learning, filling out the mood questionnaire, guidelines for courses, introducing themselves, how to change lives, registering mood type, delegating tasks and taking an exam.

Session II: self-observing and changing behavioral patterns, how to start a conversation, how to perform the baseline study, baseline study of joyful activities, delegating tasks and taking an exam.

Session III: reducing stress, how to meet new people, assessment of stress, learn how to use Jacobson relaxation techniques, questions and answers.

Session IV: learning how to change, learn how to analyze and use baseline information, set goals for joyful activities, binding a personal contract.

Session V: change of mind, learn how to plan for success, conversational skills training, thought control training.

Session VI: the power of positive thinking, learn how to increase positive thoughts, identifying negative thoughts, changing negative thoughts into positive ones, personal contract.

Session VII: stability against irrational thoughts, discovering irrational beliefs, converting impersonal thoughts to personal ones, C.A.B method training, other methods to tackle activating events.

Session VIII: relaxation, C.A.B practice, advancing intimacy skills, effective application of relaxation techniques, learning Benson Relaxation Techniques, learning Fast Benson Relaxation Techniques.

Session IX: Relationship (Part I), learning the techniques to stop negative thoughts, examining answers, learning how to listen, custom answers against conceptual answers.

Session X: Relationship (Part II), learn how to express positive feelings, learn how to express negative feelings

Session XI: conversation and problem solving (Part I), application of assertiveness illustration, logic of problem solving and discussion, the basic laws of resolving disagreements, determining the problem, practice problem solving and active listening.

Session XII: conversation and problem solving (Part II), brainstorming, choosing a solution, performing and binding a contract, problem-solving and conversation exercises.

The subjects participated in three sessions of exercise per week, each session lasting 30 to 40 minutes. They also participated in elementary level aerobics classes instructed by aerobics instructor for 12 weeks. Beck et al. Children's Depression Inventory [13] was used to collect data. This questionnaire is a self-report instrument consisting of 27 items. Each item was scored based on a three-point scale including 0, 1, 2 points (0: no symptoms, 1: moderate symptoms, 2: explicit). The scores ranged from zero to fifty-four. A high score represents a high degree of depression. Test-retest reliability and internal consistency of the questionnaire were respectively obtained as 0.82 and 0.83.

RESULTS

Analysis of covariance was used to test the hypotheses test to control the error variables. In order to test analysis of covariance, the hypotheses were examine. The hypotheses were confirmed. Then, analysis of covariance can be used. The effect of group cognitive behavior therapy in decreasing depression among 14-17 years old adolescent girls in Bastak City was examined. As it can be observed, level of significance level at pretest was ($p>0.05$) while level of significance at posttest was ($p<0.05$). Then, it can be concluded that group CBT is effective in depression of 14-17 years old adolescent girls in Bastak City. In other words, CBT reduces depression. According to Eta results, it can be concluded that 0.87% of the variance in depression is explained by cognitive-behavioral therapy.

The effect of exercise in reducing depression was examined among 14-17 years old adolescent girls in Bastak City. As it can be observed, the level of significance at pretest was ($p>0.05$) while level of the significance at posttest was ($p<0.05$). Then, it was concluded that exercise is effective in depression among 14-17 years old adolescent girls in Bastak City. In other words, exercise reduces depression. According to Eta results, it can be concluded that 0.84% of variance of depression is explained by exercise.

Table 1. ANCOVA relevant to depression in cognitive-behavioral therapy experimental group and the control group

Source of variation	Sum of squares	Degree of freedom	Mean of squares	F	Level of significance	Eta coefficient
Pretest	53.76	1	53.76	3.70	0.071	0.18
Group	1679.19	1	1679.19	115.74	0.001	0.87
Error	246.64	17	14.51			
Total	7242.00	20				

R Squared = 0.88 (Adjusted R Squared = 0.86)

Table 2. ANCOVA relevant to depression variable in the exercise group and the control group

Source of variation	Sum of squares	Degree of freedom	Mean of squares	F	Level of significance	Eta coefficient
Pretest	51.69	1	51.69	4.02	0.061	0.19
Group	1218.85	1	1218.85	94.91	0.001	0.84
Error	218.30	17	12.84			
Total	7496.00	20				

R Squared = 0.86 (Adjusted R Squared = 0.85)

DISCUSSION

All obtained mean scores of depression showed that depression is reduced by either cognitive behavioral therapy or exercise technique at pre-test and post-test. However, no significant difference was observed in depression scores at posttest and pretest in the control group. This section examines each one of the research hypotheses.

The first hypothesis: group CBT is effective in reducing depression in 14-17 years old in adolescent girls in Bastak City. Analysis of covariance was used in order to investigate the effect of group cognitive behavior therapy group in decreasing depression. As the results showed, group CBT is effective in depression in 14-17 years old adolescent girls in Bastak City. In other words, group CBT reduces depression. According to Eta result, 0.87% of the variance in depression is explained by cognitive-behavioral therapy. Thus, the first research hypothesis was confirmed. These results on efficacy of group CBT in reducing depression are in line with those obtained by Oie and Dingle [8] and Mohammadi et al. [12]. It is believed that group therapy is effective in most disputes because the individual oversees the way he interacts within the society. This issue improves his insights and way of thinking. He may acquire new experiences and learn how to communicate with others.

Adolescents learn how to change their thoughts in order to solve their problems actively and openly, develop emotions, and change inappropriate behaviors. According to Beck, individual thinking and reasoning determine emotional states. According to Beck, depressed people tend to think in a distorted way. They usually have a negative view toward themselves, the world and other people. In fact, cognitive behavioral therapy significantly reduces depression through following processes: changing individual attitudes toward themselves, others and the world, participating in group CBT, nurturing social skills and increasing pleasant activities in life.

The second hypothesis: exercise is effective in reducing depression in 14-17 years old adolescent girls in Bastak city. The results showed that exercise is effective in reducing depression among 14-17 years old adolescent girls in Bastak City. According to Eta results, 0.84% of the variance in depression is explained by exercise. These results are in line with those obtained by Blumenthal et al. [14] and Williams et al [15].

Aerobic exercise develops and increases physical fitness (cardio), strength, speed, coordination between nerves and muscles, flexibility, and agility [17]. Meditation is important in aerobics. This has led to growth and development of subjective creativity; moreover, individual mind is less involved in depression and anxiety (Beck et al, 1961; Grant et al, 2004). Aerobics enhances functionality of cardiovascular and respiratory systems (Ellison et al, 2005). As it was observed, exercise reduces such problems as depression. In fact, exercise leads to happiness, which not only improves physical health, but also reduces psychological disorders. Thus, exercise can be effective in reducing depression.

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