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The Effectiveness of Cognitive-Behavioral Therapy in Decreasing Depression and Increasing Happiness and Life Satisfaction

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Abstract

This study examined the effectiveness of cognitive-behavioral therapy (CBT) in improving depression, happiness, and satisfaction with life in male high school students. The current quasi-experimental study had a pretest-posttest design with a control group. The mean depression score significantly ($P < 0.001$) decreased in the intervention group compared with the control group in post-test. Also, the CBT group showed significant increases in happiness ($P < 0.001$) and satisfaction with life ($P < 0.001$) compared with the control group. In conclusion, CBT proves effective in improving depression, happiness, and satisfaction with life in high school students.

Keywords: Therapy, Depression, Happiness, Satisfaction, Life.

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La efectividad de la terapia cognitivo-conductual para disminuir la depresión y aumentar la felicidad

Resumen

Este estudio examinó la efectividad de la terapia cognitivo-conductual (TCC) para mejorar la depresión, la felicidad y la satisfacción con la vida en estudiantes de secundaria masculinos. El estudio cuasi experimental actual tenía un diseño de prueba previa y posterior con un grupo de control. El puntaje promedio de depresión (P <0,001) disminuyó en el grupo de intervención en comparación con el grupo control. Además, el grupo de TCC mostró aumentos significativos en la felicidad (P <0,001) y la satisfacción con la vida (P <0,001) en comparación con el grupo de control. En conclusión, la TCC demuestra ser efectiva para mejorar la depresión, la felicidad y la satisfacción con la vida en los estudiantes de secundaria.

Palabras clave: Terapia, Depresión, Felicidad, Satisfacción, Vida.

1. INTRODUCTION

Mental health constitutes an essential component of health, and failure to properly address it will have socioeconomic implications. Some individuals and age groups are more vulnerable mentally because of the special circumstances that they have. Adolescence is one the most important and at the same time most troubled and complicated stages of life. Issues arising during puberty are so critical that adolescence can be referred to as the period of crisis and pressure. Adolescence is the transitional stage from childhood to adulthood, characterized by physical, cognitive, psychological, and sexual changes that can be both exciting and frightening. On the other hand,

adolescents must prepare themselves for adult life, entering the university or the labor market. These factors cause the high prevalence of some psychological problems in this group, including depression and lower life satisfaction and happiness (Goldbeck et al., 2007; Thapar et al., 2012)

Research also indicates that happiness and life satisfaction in adolescents may be negatively affected by such factors as puberty. For example, Kwan examined life satisfaction among students in Hong Kong and found that life satisfaction was very low among adolescents (Kwan, 2010). In another study, researchers examined the decline in happiness during adolescence. In this study, 339 adolescents who had finished their middle school were followed up for three years. The study found that students about to enter high school tend to experience declines in happiness (Uusitalo-Malmivaara, 2014).

Various approaches have been used to explain the etiology and treatment of depression, the most notable of them being the cognitive-behavioral approach. Cognitive therapy was developed by Aaron T. Beck in the early 1960s based on the cognitive model, which states that thoughts, feelings, and behaviors are interconnected. Beck maintained that one's feelings are not informed by a certain situation, but by the way, one's mind processes that situation (Beck, 1998). Cognitive-behavioral theorists believe that individuals with depression have faulty cognitions about the events of life, resulting in distortions in the way they see their world and themselves. Individuals with depression are characterized by three forms of negative thinking in their reaction to stressful situations, which Beck refers to as cognitive triad, namely, negative view of the self, the world, and the future. When this distorted thoughts of the self, the

world, and the future are activated (called depression schema), a vicious circle develops and depression ensues (Beck, 1998).

Many studies indicate the effectiveness of cognitive-behavioral therapy (CBT) in depression (De Rubeis et al., 2005; Forman et al., 2007). Hashemi and colleagues found that the CBT intervention group had significantly improved mean happiness score compared with the control group. These findings have been reproduced in other studies (Hashemi & Feili, 2013). Studies also show that CBT is effective in improving life satisfaction (Hiltunen et al., 2013).

Although the effectiveness of CBT in improving depression, happiness, and life satisfaction has been examined separately, because of the specific characteristics of adolescents, which make them vulnerable to psychological issues such as depression and loss of happiness and life satisfaction, conducting a comprehensive study on depression, happiness, and life satisfaction seems necessary. The present study, therefore, aimed to investigate the effect of CBT on depression, happiness, and life satisfaction among male high school students.

2. MATERIALS AND METHODS

2.1. Study design

The current quasi-experimental study had a pretest-posttest design with a control group.

2.2. Participants and procedure

Participants were male high school students recruited via convenient sampling from the schools of the 6th District of Tehran, Iran, in the academic year 2016-17. A total of 415 students were assessed for eligibility based on the following inclusion criteria: 1) having moderate to severe depression as assessed by the Beck Depression Inventory and 2) not having other psychiatric disorders. Exclusion criteria included 1) any sign or symptom of exacerbation of depression during the intervention, 2) decline in student school performance due to participation in the intervention; and 3) missing more than one session of therapy during the intervention. Following the assessment, 60 students were randomized to the intervention or control group (30 participants each). Three participants in the intervention group and 1 participant in the control group refused to participate in the final assessments (Figure 1).

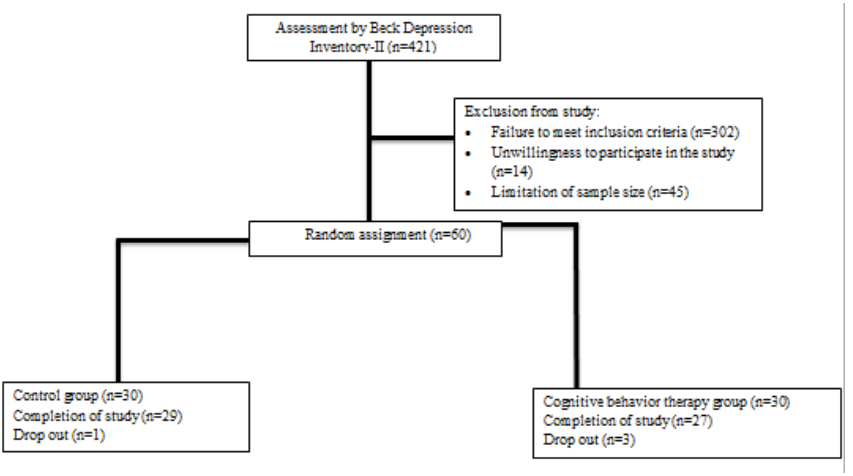

Figure 1 Sampling and random assignment of subjects

The intervention group participated in a CBT program consisting of 8 1.5-hour sessions following the protocol developed by Kamfois and Jakooeen in 1995 (Table 1) (Kamphuis & Jacquin, 1995). The treatment was conducted by a psychology Ph.D. student trained in the field of cognitive behavior therapy. Also, an assistant with a master's degree in counseling helped the investigator during the study.

Table 1. The outline of cognitive-behavioral therapy protocol adapted from Kamfois and Jakooeen

Sessions	Activities
First session	Introduction, icebreaker, hopes and fears exercise, sentence completions about depression, explaining the cognitive-behavioral model of depression
Second session	Discussion about bad/good times in life, cognitive work, letter writing, pleasant events, relaxation techniques
Third session	Pleasant events (continued), cognitive restructuring (introducing Beck's cognitive triad)
Fourth session	Cognitive restructuring, self-evaluation of domains of functioning, self-esteem exercise
Fifth session	Cognitive restructuring, introducing schemas
Sixth session	Cognitive restructuring, modifying schemas
Seventh session	Cognitive restructuring, review of schema modifications, family portrait exercise,
Eighth session	Review of material covered, continuing and maintaining therapeutic gains, wrap up and good-bye

2.3. Research Tools

2.3.1. Beck Depression Inventory-II (BDI-II)

For the past 35 years, the Beck Depression Inventory has been one of the most widely used screening tools for depression. The BDI-II is the latest version of the questionnaire, which is designed to evaluate the severity of depression in individuals aged 13 years and older by assessing the symptoms over the past two weeks. The earlier versions of the BDI covered only 6 of the 9 criteria for the diagnosis of depression and had other flaws; therefore, the DBI-II was developed in 1996 for a greater consistency with the depression diagnosis criteria in DSM-IV (Fata et al., 2005). The DBI-II consists of 21 items rated on a 4-point scale from 0 to 3, with the total score ranging between 0 and 63. The standardized cutoffs for the severity of depression are as follows: 0 to 13 (minimal depression), 14 to 19 (mild depression), 20 to 28 (moderate depression), and 29 to 63 (severe depression) (Dolle et al., 2012). This questionnaire has versions in different countries such as Japan Kojima et al. (2002) and Brazil (Gomesoliveira et al., 2012). The convergent validity of the BDI-II with the Hamilton Rating Scale for Depression (HRSD) was $r = 0.71$. Also, the test-retest reliability of the instrument after a week was reported to be 0.93. Psychometric properties of the Persian version of the DBI-II was investigated using a sample of $n = 94$ subjects in Iran (Cronbach's alpha coefficient: 0.91, test-retest reliability: 0.94, and internal reliability: 0.89) (Fata et al., 2005). In another study in Iran, the Cronbach's alpha coefficient was calculated 0.87 and a test-retest reliability of 0.74 was obtained (Ghassemzadeh et al., 2005).

2.3.2. Oxford Happiness Questionnaire (OHQ)

The questionnaire has been derived from the Oxford Happiness Inventory (OHI), itself developed following the format of the BDI, consisting of 29 four-choice items (Hills & Argyle, 2002). Argyle, after consulting with Beck, reversed the BDI statements to obtain 21 items relevant to well-being. Then 11 items were added to it to cover other aspects of happiness. After a pilot administration and removal of three items, the final scale was reduced to 29 items. In 2002, Argyle and Hills devised an alternative and improved version of the OHI scale, the Oxford Happiness Questionnaire (OHQ), consisting of 29 items (20 items of the previous scale of and 9 revised items) that are answered on a 6-point Likert scale. The change in the answering format, according to its developers, reduces the likelihood of contextual and imperative responses and is applicable to the general, and not clinical, population. The OHQ evaluates psychological constructs such as obvious rewards of life, mental preparation, self-satisfaction, a sense of aesthetic, satisfaction with life, time organizing, search attraction, and happy memories (Hadinejad & Zaree, 2009).

Hills and Argyle in 2002 reported high reliability for the questionnaire ($\alpha = 0.91$), and the inter-item correlations varied between -0.04 and 0.65. They obtained significant correlations between the OHQ and the scales of extroversion (0.61, $P < 0.001$), neuroticism (-0.59, $P < 0.001$), and psychoticism (-0.17, $P < 0.05$). Furthermore, positive significant correlations were found between the OHQ and life orientation test, life regard index, self-esteem, and satisfaction with life, indicating a high level of the construct validity of the questionnaire (Hills & Argyle,

2002). Hadi Nejad and Zaree, in an attempt to standardize the OHQ, tested 1021 male and female high school students in Zanjan province of Iran. The four-week test-retest reliability of the questionnaire was $r = 0.78$, with the Cronbach's alpha coefficients at the test and retest phases being 0.84 and 0.87, respectively. Factor analysis showed that 7 factors explained 33% of the total variance in the happiness scores (Hadi Nejad & Zaree, 2009).

2.3.3. Satisfaction with Life Scale (SWLS)

The Satisfaction with Life Scale was developed by Diener and colleagues to assess the global satisfaction with one's life. The instrument consists of 5 items rated on a 7-point Likert-type scale, and displayed good test-retest reliability ($r = 0.82$) and internal consistency ($\alpha = 0.87$) (Diener et al., 1985). The Iranian version of the SLWS was also found to have good internal consistency (Cronbach's alpha = 0.83), test-retest reliability ($r = 0.63$), and high construct validity. Another study reported the alpha coefficient and test-retest reliability of the questionnaire to be 0.85 and 0.90, respectively (Tagharrobi et al., 2012)

2.4. Ethical considerations

All participants signed the written consent form. All the data were coded and placed in a safe place. Also, the participants in the intervention group were instructed to inform the researchers at any stage of the

intervention in case their condition worsened or they felt uncomfortable with the treatment so that they would be excluded from the study. At the end of the study, the control group was offered the opportunity to participate in the same treatment.

2.5. Data analysis

Data were analyzed using SPSS version 22. Independent t-test, chi-square test, and univariate analysis of covariance (ANCOVA) were used in data analysis.

3. RESULTS

Data on 56 participants (27 in the intervention and 29 in the control group) were used in the final analyses. The mean (SD) age of the intervention group was 15.88 (0.69) years, and that of the control group was 15.96 (0.68). The mean difference in age was not significant, $t = 0.418$, $P = 0.679$. Sixteen (26.7%) students were 10th grade, 32 (53.3%) were 11th grade, and 12 (20%) were 12th grade. The chi-square test revealed no difference in the grade distribution between the groups ($\chi^2 = 1.220$, $P = 0.896$).

Table 2 presents the mean and standard deviation of depression, happiness, and life satisfaction scores for the two groups at baseline and after the intervention.

Table 2. Mean and standard deviation of the study variables for the two groups at baseline and post intervention

Variable	Group	Pretest		Posttest	
		Mean	SD	Mean	SD
Depression	intervention	28.85	5.32	20.44	4.11
	Control	30.06	6.44	29.44	5.98
Happiness	intervention	68.77	11.49	81.66	13.29
	Control	67.93	15.81	66.37	10.70
Satisfaction with life	intervention	22.77	6.84	26.62	4.79
	Control	22.27	5.67	22.75	4.78

As shown in Table 2, the mean depression score for the intervention group decreased from 28.85 at baseline to 20.44 post intervention, while the control group showed a small decrease from 30.06 to 29.44. Also, both happiness and satisfaction with life increased in the intervention group; however, the differences are negligible in the control group. Univariate analysis of covariance (ANCOVA) was used to compare posttest depression, happiness, and satisfaction with life scores between the groups by controlling for the effects of the baseline values (Table 3).

Table 3. Univariate analysis of covariance to compare the scores for depression, happiness, and satisfaction with life between the groups

Variable	Sum of squares	Degree of freedom	Mean Square	F	P	*eta* squared	Observed power
Depression	906.11	1	906.11	125.60	$P < 0.001$	0.703	1.00
Happiness	3022.50	1	3022.50	54.27	$P < 0.001$	0.506	1.00
Satisfaction with life	174.85	1	174.85	29.60	$P < 0.001$	0.358	1.00

As seen from the above table, the differences in posttest values between the two groups were significant for depression ($P < 0.001$), happiness ($P < 0.001$), and satisfaction with life ($P < 0.001$), indicating the effectiveness of CBT in improving these variables.

4. DISCUSSION AND CONCLUSION

This study aimed to investigate the effectiveness of group CBT on improving depression, happiness, and satisfaction with life in students with moderate and severe depression. The first finding of the present study was that depression severity was decreased significantly in the CBT intervention group compared with the control group. This finding is supported by previous research. For example, Yaghobi Nasrabadi and colleagues, in a study on 14 patients, found that group CBT was significantly effective in reducing depression in inpatients diagnosed with mood disorders. Similar finding has also been reported in the other studies (DeRubeis et al., 2005; Forman et al., 2007). Many studies have tried to explain how CBT improves depression. Aaron T. Beck suggests in his model that a person's experiences lead to the formation of postulates and schemas about the self and the world, and these postulates underlie the person's perception and behavior. The more inflexible and radical these postulates are, the more dysfunctional they are; and when activated, contribute to negative automatic thoughts linked with unpleasant emotions, creating symptoms of depression. As these thoughts become more severe, the person would become more depressed. Cognitive therapists treat depression by breaking this

vicious circle. In CBT, the patient is encouraged to see the relationship between his or her negative automatic thoughts and feelings of depression as hypotheses to be tested, and use the behaviors resulting from those negative automatic thoughts to evaluate the reliability or accuracy of those thoughts (Hawton et al., 1989).

Another finding of this study was that CBT significantly increased the happiness and satisfaction with life. There are studies with findings in line with that of ours. For example, Hashemi and colleagues found that the group receiving CBT had significantly increased happiness compared with the control group (Hashemi & Feili, 2013). Similar findings have been reported in other studies regarding happiness and satisfaction with life (Hiltunen et al., 2013). Cognitive behavioral training includes regulation of affect, stress management, communication, emotion control, and self-control on the one hand, and entails the value structure and self-efficacy on the other hand, with the purpose of promoting happiness through enhancing a person's interaction with his or her environment (Hashemi & Feili, 2013). CBT also promotes happiness by teaching relaxation techniques and how to identify negative automatic thoughts and replace them with positive and rational thoughts, to better control their emotions, to develop social support networks, and build healthy social relationships, all of which contribute to a happy life (Hashemi & Feili, 2013). Regarding the effectiveness of CBT in improving satisfaction with life, it should be noted that this treatment affects all aspects of life, and that is why it can lead to an increase in life satisfaction (Driessen & Hollon, 2011). Generally, the results of this study showed that CBT can be

effective in improving depression, happiness, and life satisfaction among high school students. Therefore, it can be broadly implemented in schools to help students affected by depression, lack of happiness, or decreased satisfaction with life.

The present study was limited in that no follow-up was performed, and that the sample comprised only male high school students. Therefore, caution should be exercised in generalizing the results of the current study. Future research should try to overcome these limitations and attempt to assess the effectiveness of this approach in comparison with other therapeutic approaches.

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