



The Effect of Dialectical Behavior Therapy on Negative Automatic Thoughts, Suicidal Ideation and Life Expectancy in Female Students of Yasooj University of Medical Sciences

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Abstract

Background: Suicide has occurred in all cultures and eras is a disaster for the individual, family, and society. Dialectical behavior therapy is a practical treatment for major depressive disorder. The main aim of the present study was to investigate the effect of dialectical behavior therapy on negative automatic thoughts, suicidal ideation, and life expectancy in female students of Yasooj university of medical sciences.

Methods: The research method is quasi-experimental and the statistical population of the study included female students of Yasooj university of medical sciences in the age range of 18 to 25 years. The sample size was 40 people who were selected by a convenience sampling method and were randomly divided into two groups of dialectical behavior therapy and control group. To collect data, Snyder hope scale, negative automatic thought scale, and Beck suicidal ideation questionnaire in pre-test and post-test stages were used. In the intervention phase, the experimental group underwent dialectical behavior therapy for ten sessions of 120 minutes while the control group did not receive any intervention during this period. Data analysis was performed using SPSS software.

Results: The findings indicate that dialectical behavior therapy was effective in increasing life expectancy and reducing negative automatic thoughts (P value=0.001) and was not significantly effective in reducing suicidal ideation.

Conclusions: Considering the effectiveness of dialectical behavior therapy on reducing negative thoughts and increasing the level of hope, therefore dialectical behavior therapy training is recommended to increase knowledge and empower students against depression and its components.

Keywords: Dialectical behavior therapy, Suicidal ideations, Negative automatic thoughts, Life expectancy.

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Introduction

Suicide is a public health problem and one of the most important psychological crises that health professionals may face in their workplace.¹ World health organization defines it as an act of ending his or her life deliberately, consciously, and voluntarily. The number reaches 1.5 million per year. Based on the statistics published by WHO, about one million people commit suicide annually and by the end of 2020, it will reach one and a half million people.² Epidemiological studies of suicide over the last two decades have indicated that suicide

attempts are increasing in Iran. These studies have mostly focused on patient groups in medical centers or forensic medicine and they have referred to causal factors such as family and marital disputes, conflicts with relatives, unemployment, and psychological disorders.³ Accordingly, suicide is a priority for mental health for the World health organization and this priority is more felt in certain groups in society. Students are among the most important of these groups that due to special age conditions, the high singularity of the majority of them, being away from family, separation from belongings and dependencies for many years, dormitory life, economic problems, a force to find relative independence, living with new friends and future work and life unknown, etc. have made group at risk of developing mental disorders such as depression and even suicidal ideations.⁴ Studies have shown that people who attempt suicide may suffer a mental illness such as depression.⁵

Cognitive characteristics related to depression include negative self-thoughts, negative attitudes, and disturbing memories. Negative automatic thoughts are negative, pessimistic, and irrational perceptions of self that come to mind unintentionally and are beyond his or her will. These thoughts are transient phenomena and include sentences and phrases that occur during consciousness. These thoughts last only as long as one is aware of them. Automatic thoughts are short and specific and may consist of just a few words or a phrase and occur quickly after an event. They are quick assessments of an event.^{6,7} Suicidal ideation is also defined in the range of a vague and strong desire to die to the complete plan of suicide.⁸ Reducing suicidal ideations and behaviors is a major goal of many emergency services organizations around the world.⁹ In this regard, more accurate suicide prevention programs are needed, including accurate and advanced diagnoses of high-risk patients. An important method is to measure the presence and severity of suicidal ideation.¹⁰ Also, life expectancy is considered as one of the sources of human coping in adapting to problems and even incurable diseases.

Hope is one of the characteristics of life that makes a person be hopeful for the future and seek for better tomorrow and success. When there is hope, the person will experience a happy life.¹¹ High levels of hope are positively associated with physical and psychological health, high self-worth, positive thinking, and excellent social relationships.¹² Jayervand¹³ showed that there was a significant correlation between high

hope and positive emotions and low hope and negative emotions so that a low level of hope predicts signs of depression.

Dialectical behavior therapy (DBT), developed by Marsha Linehan, is a special type of cognitive-behavioral psychotherapy that has been very effective in recent decades for treating people with suicidal ideation and borderline personality disorder.¹⁴ In this treatment, two strategies and commitment are used. This treatment helps people to have a balanced and non-judgment feeling, to accept the emotions and events of life, and to reduce psychological stress, leading to increased physical, mental and emotional well-being.¹⁵ Also, in DBT or dialectical behavior therapy, suicidal behaviors and other dysfunctional behaviors are balanced by focusing on active problem solving and by emphasizing confirming ones' current emotional, cognitive, and behavioral reactions.¹⁶ Given the importance of students' mental health and reducing suicidal ideation and increasing the level of hope in this group of people, the present study was conducted to evaluate the effectiveness of dialectical behavior therapy on negative automatic thoughts, hope for the future, and suicidal ideation in female students.

Materials and Methods

In this quasi-experimental study with pre-test post-test and a control group, the statistical population included all female students referred to the counseling and mental health department of Yasooj university of medical sciences in 2018 who had depressive disorder was performed. Morgan table was used to estimate the sample size. Using a convenient sampling method among female students, 40 subjects who met the inclusion criteria were purposefully selected and were randomly assigned into one of the dialectical behavior therapy and control groups (n=20 per group). After obtaining the code of ethics and making the necessary coordination with the student cultural deputy of the university, the purpose of the study was clearly explained to the participants, and after obtaining their written consent, the data were collected. After randomly selecting and replacing the subjects in the experimental and control groups, individuals in both groups the questionnaires of hope, negative thoughts, and suicidal thoughts were given.

After implementing the pre-test, the subjects of the dialectical behavior therapy group received dialectical behavior therapy for 10 sessions, but subjects in the control group did not receive it or similar training. At the end of the training course in the experimental group, post-test (hope, negative thoughts, and suicidal ideations questionnaires) was taken again from the subjects of both groups.

Inclusion criteria were female student living in dormitory of Yasooj University of Medical Sciences; age between 18 to 25 years, having the consent to participate in the study, having depression based on psychological evaluation, and no history of hospitalization due to psychotic disorders and taking drug. Exclusion criteria were absence from training sessions for three or more sessions, and participation in psychological counseling sessions or participation in preventive treatment programs in this area simultaneous with implementation of this study.

Hope scale: This instrument is a self-assessment scale developed by Snyder in 1996 to assess hope. It includes 12 items that assess two components of agency thinking and strategic thinking. The items are answered on a 4-point Likert scale (1=completely incorrect, 2=relatively incorrect, 3=relatively correct, and 4=completely correct) and the score range is between 8 and 32.¹⁷ The validity study simultaneously with calculating the correlation between this scale and the suicide thoughts scale, perceived social support and meaning, showed a negative relationship between the hope scale scores and the suicidal thoughts scale scores and a positive relationship between perceived social support scales scores and meaning in life. The validity coefficient of this scale was 0.86 using Cronbach's alpha formula and 0.81 through retesting.¹⁸

Negative automatic thoughts scale: This instrument is a self-assessment scale developed by Kendall and Holon in 1980 to assess the cognitive component of depression from one's perspective and includes 30 items assessing four components of individual maladaptation, negative self-concept, low self-esteem, and helplessness. The total score of the whole scale is obtained by summing up of scores of all items. The items are scored on a 5-point Likert scale (1=never, 2=sometimes, 3=moderate, 4=often, and 5=always) and the range of scores is between 30 and 150. Its mean is 79.64 for depressed people and 48.57 for non-depressed people.¹⁹ Convergence validity of the spontaneous thoughts questionnaire with beck depression inventory with beck correlation coefficient has been investigated that the internal correlation coefficient has been obtained 0.40 to 0.70 which indicates the convergence validity of the spontaneous thoughts questionnaire is negative. An internal consistency study was obtained on Spanish samples with an alpha coefficient of 0.89.²⁰

Suicidal ideation scale: This instrument is a self-assessment scale developed by Beck in 1988 to detect and assess the severity of attitudes, behaviors, and planning to commit suicide. The scale consists of 19 items that assess three components of willingness to death, readiness to suicide, and willingness to suicide. The score of the whole scale is obtained by summing up the scores of items. The items are answered on a 3-point Likert scale (as 0=a, 1=b, and 2=c) and the score ranges from zero to 38. Esfahani et al.²¹ reported the validity of the scale at 0.76 using the concurrent validity of the scale with the Goldberg depression scale and the reliability of scale using Cronbach's alpha method split-half method was obtained at 0.95 and 0.75, respectively.²¹

The collected data were analyzed in SPSS version 23.0 in two descriptive (central indices of mean and standard deviation) and inferential (univariate and multivariate analysis of variance and Tukey post hoc test) levels. The results are presented in the form of tables of means and the effect of the independent variable on the dependent variables.

Results

In the present study, the gender of all participants was female, the mean and standard deviation of the age of the participants was 26.52±6.52 years. Other descriptive information of research variables related to pre-test and post-test is given in table 1. As the results of table 1 show, in all the above variables, the scores are

close to each other control and experimental groups in the pre-test stage, but a large difference was observed in the mean post-test of the two groups.

Based on table 2, the intervention method has a significant effect on the component of agency thinking ($F=14.28$ and $Pvalue=0.0001$) and the component of strategic thinking ($F=82.36$ and $Pvalue=0.0001$) and according to the results, Eta-squared could explain 37% of the variance of agency thinking and 77% of the variance of strategic thinking.

Due to the significance of the results of analysis of variance test, Tukey test was used, the results of which are presented in table 3. According to the results of table 3, the mean of both components

of hope in the control group is lower than that of the DBT group, indicating that the DBT method has a significant effect on increasing the components of hope.

One-way univariate analysis of variance was used to evaluate the effect of dialectical behavior therapy (DBT) on increasing students' total hope scores. Levene's test indicates that this test is non-significant ($F=0.02$ and $Pvalue=0.98$), indicating the homogeneity of variance of the hope variable in research groups. As table 4 shows, the intervention method has a significant effect on the total score of hope ($F=83.66$ and $Pvalue=0.0001$) and according to the results, Eta-squared could explain 78% of the variance of hope.

Table 1. Mean and standard deviation (SD) of research variables in pre-test, post-test and follow-up stages

Scale	Subscale	Groups	Pre-test		Post-test	
			Mean	SD	Mean	SD
Hope for life	Agency thinking	DBT	8.75	0.97	11.06	0.92
		Control	8.75	1.02	9.56	0.92
	Strategic thinking	DBT	9.20	1.15	12.61	1.07
		Control	9.00	0.91	8.89	0.90
	Total hope score	DBT	17.95	1.87	23.38	1.36
		Control	17.75	1.55	18.44	1.33
Negative automatic thoughts	Individual incompatibility	DBT	15.60	1.31	13.06	1.65
		Control	15.55	1.19	15.28	0.95
	Negative self-concept	DBT	21.95	2.13	16.94	2.14
		Control	21.80	2.30	21.61	2.33
	Low self-esteem	DBT	5.95	0.68	4.31	0.79
		Control	5.85	0.36	5.83	0.38
Suicidal ideation	Helplessness	DBT	6.85	0.93	4.88	0.71
		Control	6.30	0.92	6.22	0.87
	Total score of negative automatic thoughts	DBT	92.80	5.54	72.50	6.99
	Total score of suicidal ideations	DBT	91.55	5.87	89.44	5.67
		Control	3.65	2.73	1.37	1.45
		Control	2.70	1.34	2.33	1.28

Table 2. The effect of DBT on the hope components of female students

Dependent variable	Source	SS	df	MS	F	Pvalue	Partial η^2
Agency thinking	Group	26.38	2	13.19	1.284	0.0001	0.37
	Error	44.32	48	0.92			
	Total	5725.00	51				
Strategic thinking	Group	148.71	2	74.35	8.362	0.0001	0.77
	Error	43.33	48	0.90			
	Total	6585.00	51				

Table 3. Comparison of hope components in different experimental and control groups

Variable	Group	Mean difference	SE	Pvalue
Agency thinking	Control	-1.50	0.32	0.0001
	DBT	-1.50	0.33	0.0001
Strategic thinking	Control	--3.69	0.32	0.0001
	DBT	-3.42	0.32	0.0001

Table 4. The effect of DBT on the total hope score of female students

Dependent variable	Source	SS	df	MS	F	PValue	Partial η^2
Total score of hope	Group	300.08	2	150.04	83.66	0.0001	0.78
	Error	86.07	48	1.79			
	Total	24458.00	51				

Due to the significance of the results of the analysis of variance test for the variable of hope, the Tukey test was used to know the difference. Its results are presented in table 5. Regarding the results of table 5, the mean total score of hope in the control group is lower than that of the DBT group, indicating that the DBT method has a significant effect on increasing the total score of hope.

Based on table 6, the intervention method had a significant effect on all four components of individual incompatibility ($F=18.89$ and $Pvalue=0.0001$), negative self-concept ($F=25.07$ and $Pvalue=0.0001$), low self-esteem ($F=77.39$ and $Pvalue=0.0001$) and helplessness ($F=18.49$ and $Pvalue=0.0001$). Based on the results, Eta-squared could explain 44% of the variance of individual incompatibility, 51% of the variance of a negative self-concept, 62% of the variance of low self-esteem, and 43% of the variance of helplessness.

Based on table 7, the mean of all four components of negative thoughts is higher in the DBT control group, indicating that the

DBT method has a significant effect on reducing the components of negative thoughts.

As shown in table 8, the intervention method had a significant effect on the total score of negative thoughts ($F=49.01$ and $Pvalue=0.0001$) and according to the results, Eta-squared could explain 67% of the variance of negative thoughts.

Based on table 9, the mean total score of negative thoughts is higher in the DBT group, indicating that the DBT method has a significant effect on reducing the total score of negative thoughts.

As shown in table 10, the intervention method did not have a significant effect on the total score of suicidal ideations ($F=1.63$ and $Pvalue=0.20$) and according to the results, Eta-squared could only explain 6% of the variance of suicidal ideation. Due to the non-significance of the results of analysis of variance for total suicide score and the lack of difference between research groups in this variable, there was no need to perform a post hoc test.

Table 5. Comparison of total hope score in experimental and control groups

Variable	Group	Mean difference	SE	PValue
Total score of hope	Control	-4.93	0.46	0.0001
	DBT	-0.27	0.46	0.830

Table 6. The effect of DBT on the negative thinking components of female students

Dependent variable	Source	SS	df	MS	F	Pvalue	Partial η^2
Individual incompatibility	Group	79.25	2	39.62	18.89	0.0001	0.44
	Error	100.66	48	2.09			
	Total	9561.00	51				
Negative self-concept	Group	233.05	2	116.53	25.07	0.0001	0.51
	Error	223.09	48	4.64			
	Total	18339.00	51				
Low self-esteem	Group	26.21	2	13.11	39.77	0.0001	0.62
	Error	15.82	48	0.33			
	Total	1248.00	51				
Helplessness	Group	23.06	2	11.53	18.49	0.0001	0.43
	Error	29.92	48	0.62			
	Total	1493.00	51				

Table 7. Comparison of negative thought components in experimental and control groups

Variable	Group	Mean difference	SE	Pvalue
Individual incompatibility	Control	2.21	0.49	0.0001
	DBT	0.65	0.50	0.61
Negative self-concept	Control	4.67	0.74	0.0001
	DBT	-0.41	0.75	0.99
Low self-esteem	Control	1.52	0.19	0.0001
	DBT	-0.04	0.20	0.99
Helplessness	Control	1.34	0.27	0.0001
	DBT	0.11	0.27	0.99

Table 8. The effect of DBT method on the total score of negative thoughts of female students

Dependent variable	Source	SS	df	MS	F	Pvalue	Partial η^2
Total score of negative thoughts	Group	3423.43	2	1711.71	49.01	0.0001	0.67
	Error	1676.21	48	34.92	34.92		
	Total	318197.00	51				

Table 9. Comparison of the total score of negative thoughts in different experimental and control groups

Variable	Group	Mean difference	SE	Pvalue
Total score of negative thoughts	Control	16.94	2.03	0.0001
	DBT	2.05	2.05	0.99

Table 10. The effect of DBT method on the total score of female students' suicidal ideation

Dependent variable	Source	SS	df	MS	F	Pvalue	Partial η^2
Total score of suicidal ideations	Group	7.78	2	3.89	1.63	0.20	0.06
	Error	119.01	48	2.38			
	Total	308.00	51				

Discussion

The present study aimed to investigate the effect of dialectical behavior therapy on negative automatic thoughts, suicidal ideation, and life expectancy in female students of Yasooj university of medical sciences. The results showed that the mean of all four components of negative thoughts in the control group is higher than that of the DBT group, indicating that the DBT method has a significant effect on reducing the components of negative thoughts. The results of the present study are in line with those of studies conducted by Zargar et al.²², Van Dijk et al.²³, Habibi et al.²⁴, Zamani et al.¹⁶, and Mami et al.²⁵. In explaining the results, it should be stated that one of the characteristics of depressed patients is that they do not perform well in distancing themselves from their emotions and mood. During the dialectical therapy process, by combining mindfulness exercises with behavioral exercises, depressed patients observe their depressed mood and its physiological, mental, behavioral, and emotional consequences without judgment and they learn the mechanism of transition from this situation in addition to accepting and tolerating it, and by learning these exercises, they turn it into an automatic style of their mind. Doing these exercises finally leads to distancing from emotions such as depressed mood and creating positive emotion.²⁶ Based on the results, the mean total score of hope in the control group is lower than that in the DBT group, indicating that the DBT method has a significant effect on increasing the total score of hope for the future. The results of this study are consistent with several other studies²⁶⁻³⁰ are generally in line with the results of studies conducted by Farnam,²⁷ Terni,²⁸ Koolaei and Derakhshandeh,²⁹ Shirpour and Moghadam,³⁰ and Bahrami and Zahedi.³¹ Accordingly, dialectical therapy can significantly increase life expectancy.

In explaining the results of this hypothesis, it can be stated that when worries about the future, anxieties about unfavorable emotional and cognitive content, and distress about life overwhelm the people, they will become hopeless people with dysfunctional life. The major goal of group dialectical therapy in the treatment of hopelessness is to change the attention and effort of clients from useless goals to actions based on their desires for a desirable life. DBT helps people to experience the present moment more fully, instead of focusing on past painful experiences or possible horrible future events, by identifying their emotions more accurately. Emotion regulation skills can reduce one's vulnerability to extreme or painful emotions and increase emotional resilience. The intervention method did not have a significant effect on the total score of suicidal ideations and based on the results, Eta-squared could only explain 6% of the variance of suicidal ideation. In explaining the above-

mentioned results, it can be stated that having suicidal ideation and suicidal attempt are psychiatric emergencies. Due to ethical considerations, students who had high suicidal ideation at the beginning of the study were not included in the research and according to the obtained results, Dialectical behavior therapy was effective in reducing suicide ideation, but this effect was not significant. This result is not in line with the results of other studies.

Due to the prevalence of Covid-19 disease, it was less possible to communicate better with the participants. This research has been done only among students and has not been studied on other citizens. This research has been studied only in Yasooj city and among the students of Yasooj university of medical sciences and it is better to study it among all students in the country.

Given that dialectical behavior-based therapy has a significant effect on negative spontaneous thoughts, hope for the future, so teaching this treatment to vulnerable and depressed groups, especially students, is recommended. It is also suggested that a comparison be made between students of different universities to identify and help students who face problems in this area. In future research, the role of variables such as socio-economic class, life satisfaction, lifestyle, etc. can be considered and the relationship between these variables and the variables of this study can be examined. This study was conducted only among students of Yasooj University of medical sciences. It is suggested that it be done among young people and citizens and the results are compared to gain a more accurate understanding of the current situation.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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