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Effectiveness of dialectical behavior therapy on hostile attributes and risky behaviors in adolescents

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Abstract

Introduction: This study investigated the effectiveness of dialectical behavior therapy on hostile attributes and high-risk behaviors in adolescents.

Materials and Methods: In the present study, 20 adolescents with high-risk behaviors and hostile documents who were referred to the Institute of Art Psychology in Mashhad, Iran, in the academic year 2020-2021, were randomly divided into experimental and control groups. Dialectical behavioral therapy was performed for 16 ninety-minute weekly sessions. The instruments used in this study were the high-risk behaviors questionnaire, hostile documents, and structured clinical interviews for clinical disorders. These questionnaires were completed by individuals in pre-test, post-test, and one month follow-up. The data were analyzed using descriptive statistics, repeated analysis of variance, and Tukey's post hoc test.

Results: Based on the findings, the mean scores of hostile attributes and high-risk behaviors in the experimental group were reduced significantly compared to the controls ($P< 0.05$).

Conclusion: Regarding the results, dialectical behavior therapy has positive effects on hostile attributes and high-risk behavior in adolescents.

Keywords: Dialectical behavior therapy, High-risk behaviors, Hostility

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Introduction

Adolescence is a period of growth accompanied by deep changes in the body, mind, and personality stability and development (1). High-risk behaviors among all adolescents are global problems that are not only limited to a certain culture and society but also have adverse effects on adolescents' social behavior and academic performance (2). Adolescents usually face psychological and interpersonal problems that make them unable to control their behavior and ignore the customs and ethics of society (3).

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Risky behaviors refer to situations in which psychological and behavioral responses in school differ from cultural, age, and ethnic norms (4) So that hurt a person's academic performance, self-care, social relationships, personal adjustment, behavior in the classroom, and social adjustment in the work environment (5). Most teenagers with behavioral problems have negative feelings and misbehave with others. In most cases, teachers and classmates reject them, and as a result, the opportunity for their education will decrease (6).

Adolescents are quick-witted during puberty in such a way that their reaction to problems is often more and more exciting than that of children (7). Risky behaviors, aggressive or annoying behaviors, are intentional by an individual or a group of individuals in a period. Sometimes, it is repeated and includes the imbalance of power, which appears in physical, verbal, and communication behaviors (8). In this line, Colton, Godleski, and Crane emphasize the role of attributions and hostile attributional biases in the emergence of risky behaviors such as aggression and state that attribution is a cognitive process during which a person tries to attribute the causes of incidents and events to an agent (9). Xu et al. have shown a direct relationship between aggressive behaviors and hostile attribution bias (10). One of the effective psychotherapy approaches to prevent serious injury in teenagers is Dialectical Behavior Therapy (DBT). This treatment is designed for people who are faced with high-risk behaviors and is based on cognitive-behavioral therapy (11). DBT is effective in reducing risky behaviors (12) and also leads to more effectiveness of interpersonal skills (13), reduction of depression, frustration and irritability, emotion regulation, and stress tolerance (14). Research has shown that this treatment reduces self-injurious behaviors (15) and suicide (16).

Based on the mentioned issues, it is essential and significant to introduce therapeutic interventions to improve hostile documents and risky behaviors in teenagers. Research shows that dialectical behavior therapy is one of the effective approaches in this field. This method is effective in preventing suicide, self-mutilation, and many high-risk behaviors and hostile behaviors (17). Emphasizing skill training and accepting and validating emotions helps reduce hostile and high-risk behaviors. The skills taught in dialectical therapy include interpersonal effectiveness, mindfulness, emotion regulation, increasing failure tolerance, and validation (18). So, we aimed to assess the effectiveness of dialectical behavior therapy on hostile attributes and high-risk behaviors in adolescents.

Materials and Methods

The statistical population of this research included all high school students (second term) of Mashhad, Iran, in the academic year of 2021. The sample size was calculated based on Kennedy's study (19) and formula. Twenty students were selected using the convenient sampling method. The inclusion criteria included a willingness to participate, having high scores (more than 80) in the high-risk behavior questionnaire and hostile documents questionnaire (more than 60),

lack of coexistence with psychiatric disorders, and not using psychoactive substances. The exclusion criteria included treatment and medication change outside the research intervention, discharge, hospitalization due to psychiatric disorders during the research, and absence of more than three sessions. The participants were randomly divided into two equal groups: dialectical behavior therapy and the control group.

Research instruments

A) Mohammadkhani's Risky Behavior Questionnaire: This tool is designed by based on the Adolescent High-Risk Behavior Monitoring Questionnaire (20). This 26-item questionnaire assesses the prevalence of a wide range of high-risk behaviors, including smoking, alcohol, psychotropic substances, aggression, depression, suicidal ideation, running away from home and school, and contact with the opposite sex. This questionnaire identifies the prevalence of high-risk behaviors over a lifetime, the last 12 months and a recent month, and the tendency to use substances in the future. The items are scored as a 5-point Likert scale. Zadeh Mohammadi et al. calculated the validity of the questionnaire through face validity so that several expert professors confirmed its validity. The results of the correlation of this scale with other scales showed convergent validity and favorable differentiation of this questionnaire. Its reliability is reported to be 0.87 (21).

Also, its internal consistency coefficient in Anbari, Mohammadkhani, and Rezaei Dogaheh's research based on Cronbach's alpha was 0.87 (22).

B) Hostile Attributional Bias Questionnaire: This questionnaire is based on the theory of social information processing (23). It is designed and contains 8 stories about social situations and asks the person to put him/herself in that situation and then answer questions about his/her reaction to that situation. Following each story, 6 questions have been asked. Each question is scored on a 4-point Likert scale from 1= not at all possible to 4= very likely. Coccaro et al. reported the validity of this questionnaire using the Cronbach's alpha method of 0.85 (24). Also, based on the social information processing model, hostile attribution bias should be correlated with aggression and adverse childhood experiences. The convergent validity of hostile attribution bias with Bass and Perry's aggression questionnaire (r= 0.44, *P*< 0.001) and adverse childhood experiences was positive and significant (r= 0.26, *P*< 0.001). Pourmohseni Koluri and Ranjbar reported the validity of the Persian version using the Cronbach's alpha method of 0.79 (25). Also, in this research, the validity of this questionnaire was 0.75, which shows the positive and meaningful convergent validity of this questionnaire.

In this study, dialectical behavior therapy sessions were performed for the experimental group according to the intervention proposed by Dimeff and Linehan (26).

Table 1. The structure of dialectical behavior therapy sessions

Session	Content
1	Distract from risky behaviors and hostile attributions, list enjoyable activities and include them in your weekly routine, leave the situation, calm yourself with your sense of smell, and calm yourself with your sense of sight, self-relaxation with a sense of hearing, self-relaxation with a sense of taste, self-relaxation with a sense of touch, creating relaxation plans
2	Conscious breathing, self-affirmation sentences, creating new adaptation strategies, creating an immediate adaptation program
3	Recognizing behaviors, overcoming obstacles to healthy behaviors, "teaching high-risk behaviors and hostile documents"
4	Reducing physical vulnerability, overeating and undereating, substances, alcohol, exercise, illness and physical pain, sleep hygiene, stress, and strain, identifying risky behaviors and hostile attributes, self-monitoring without judgment, reducing risky behaviors
5	Identify a higher power and connect to it, live in the present, and listen to the present
6	Using adaptive thoughts of self-encouragement and fundamental acceptance and using the possibilities of coping thoughts, balancing thoughts and feelings
7	Dealing with hostile documents, working against hostile thoughts, and solving problems
8	Thoughtless technique, focusing on a single minute, focusing on a single object, light bar, recording a few minutes of thoughts, thought failure
9	Internal-external experience, description of thoughts, list of common thoughts, change of focus, conscious breathing
10	Fundamental acceptance, negative judgment and judgment against the present, conscious communication with others
11	Sentences of the conscious "I", being conscious in everyday life, resistances and obstacles to mindfulness exercises
12	Pay attention to the vastness and tranquility, mindfulness of the place inside and out, return to tranquility and silence
13	Considerable attention, caring attention, passive and aggressive behavior, defining and determining style and pattern, "I want, they want" technique, musts, skill formation, and construction, key interpersonal skills and techniques influence on others, conflicting table
14	Old inactive habits, hard feelings, symptomatic feelings and behaviors, failure to determine needs and fears, risk assessment, risk planning, and poisonous relationships, myths, and awareness of what you want
15	Behavioral balance, creating simple requests, daring versions of "I think, I feel, I want"
16	Overcoming resistance and conflict "reciprocal confirmation, interruption of records", searching and exploring avoidance of truth, definite delay, conversation, analyzing problems in interactions, applying specific listening skills, saying no

Results

Table 2 presents the adolescents' demographic variables. As seen in Table 3, the scores of high-risk behaviors and hostile attribution in post-test and follow-up in the experimental group were decreased. In the control group, the mean scores of post-test and follow-up after one month are higher than the pre-test or have not changed. We used repeated analysis of variance to evaluate the effectiveness of dialectical behavior therapy on high-risk behaviors and hostile attribution. The results of Levene's test to measure the equality of variance of groups in high-risk behaviors and hostile attribution were more than 0.05. The scores of high-risk behaviors and hostile attribution are the same in the pre-test, post-test, and follow-up. Also, statistics and F related to Mohawk sphericity and M-box variables of high-risk behaviors and hostile documents were obtained to measure the sphericity of the variance matrix more and less than the alpha level 0.05, respectively. Therefore, all the stated assumptions were made for repeated measurement statistical analysis.

Table 2. Demographic variables in experimental and control groups

Variable		Dialectical behavior therapy group		Control group	
		Frequency	Percent	Frequency	Percent
Gender	Boy	3	30	4	40
	Girl	7	70	6	60
Grade in high school	10^{th} grade	3	30	6	60
	11^{th} grade	5	50	3	30
	12^{th} grade	2	20	1	10

Table 3. Descriptive indicators of high-risk behaviors and their components and hostile attribution

Variable	Dialectical behavior therapy group			Control group		
	Pre-test Mean ± SD	Post-test Mean ± SD	Follow-up Mean ± SD	Pre-test Mean ± SD	Post-test Mean ± SD	Follow-up Mean ± SD
Substance addiction	31.30 ± 1.33	18.60 ± 1.95	18.40 ± 2.11	31.70 ± 5.16	27.20 ± 1.30	32.30 ± 5.37
Tendency to alcohol	18.00 ± 1.39	10.10 ± 1.28	9.90 ± 1.28	18.40 ± 1.71	14.90 ± 2.07	18.80 ± 1.31
Tendency to violence	22.30 ± 1.15	10.80 ± 1.13	10.60 ± 0.96	24.30 ± 1.88	17.80 ± 1.87	25.10 ± 1.59
Sexual orientation	30.70 ± 2.40	19.50 ± 2.06	19.30 ± 2.05	29.80 ± 1.61	26.70 ± 2.26	30.90 ± 1.72
Tendency to have a relationship with the opposite sex	28.90 ± 1.19	16.50 ± 1.35	16.40 ± 1.42	27.80 ± 1.75	22.10 ± 2.37	28.90 ± 1.91
Dangerous driving tendencies	15.80 ± 2.09	9.70 ± 1.88	9.50 ± 2.06	16.50 ± 1.28	14.30 ± 1.56	17.40 ± 0.96
The bias of hostile attribution	53.70 ± 7.97	29.10 ± 9.19	28.30 ± 8.90	59.40 ± 11.72	59.00 ± 7.81	60.50 ± 12.07

The results of Table 4 indicate that F variables of high-risk behaviors and hostile attribution were significant in the experimental group (P= 0.04), compared to the control group (P= 0.20). This finding indicates the positive effect of dialectical behavior therapy on high-risk behaviors and hostile attribution. Tukey's post hoc test table (Table 5) compares the components in the three stages of research in dialectical behavior therapy. The post-test scores of high-risk behaviors and hostile attribution significantly decreased compared to pre-test scores (P< 0.05). In the component of hostile documents, follow-up compared to pre-test had a significant decrease (P< 0.05), but in different dimensions of high-risk follow-up behaviors compared to post-test did not increase significantly (P> 0.05).

Table 4. Results of intragroup effect tests (repeated measurements)

Variable	Total squares	Degrees of freedom	Mean squares	F	P	Eta
Substance addiction	1092.46	1.13	960.34	805.9	0.000	0.98
Tendency to alcohol	516.46	1.13	454.008	381	0.000	0.97
Tendency to violence	897.26	1.05	854.33	574.08	0.000	0.98
Sexual orientation	851.46	1.10	770.52	611.42	0.000	0.98
Tendency to have a relationship with the opposite sex	1033.40	1.03	1002.46	358.63	0.000	0.97
Dangerous driving tendencies	256.46	1.05	244.09	71.68	0.000	0.88
The bias of hostile attribution	0.91	1.00	0.91	8.13	0.020	0.51

Table 5. Comparing high-risk behaviors components in three stages in dialectical behavior therapy group

Variable	Stage i	Stage j	Mean difference	Standard error	P
Substance addiction	Pre-test	Post-test	12.70	0.44	0.000
		Follow-up	12.90	0.43	0.000
	Post-test	Pre-test	-12.70	0.44	0.000
		Follow-up	0.20	0.13	0.160
	Follow-up	Pre-test	-12.90	0.43	0.000
		Post-test	-0.20	0.13	0.160
Tendency to alcohol	Pre-test	Post-test	8.70	0.44	0.000
		Follow-up	8.90	0.43	0.000
	Post-test	Pre-test	-8.70	0.44	0.000
		Follow-up	0.20	0.13	0.170
	Follow-up	Pre-test	-8.90	0.43	0.000
		Post-test	-0.20	0.12	0.170
Tendency to violence	Pre-test	Post-test	11.50	0.52	0.000
		Follow-up	11.70	0.42	0.000
	Post-test	Pre-test	-11.50	0.52	0.000
		Follow-up	0.20	0.13	0.160
	Follow-up	Pre-test	-11.70	0.42	0.000
		Post-test	-0.20	0.13	0.160
Sexual orientation	Pre test	Post-test	11.20	0.41	0.000
		Follow-up	11.40	0.47	0.000
	Post-test	Pre-test	-11.20	0.41	0.000
		Follow-up	0.20	0.13	0.160
	Follow-up	Pre-test	-11.40	0.47	0.000
		Post-test	-0.20	0.13	0.160
Tendency to have a relationship with the opposite sex	Pre-test	Post-test	12.40	0.63	0.000
		Follow-up	12.50	0.67	0.000
	Post-test	Pre-test	-12.40	0.63	0.000
		Follow-up	0.10	0.10	0.340
	Follow-up	Pre-test	-12.50	0.67	0.000
		Post-test	-0.10	0.10	0.340
Dangerous driving tendencies	Pre-test	Post-test	6.10	0.72	0.000
		Follow-up	6.30	0.73	0.000
	Post-test	Pre-test	-6.10	0.72	0.000
		Follow-up	0.20	0.13	0.160
	Follow-up	Pre-test	-6.30	0.73	0.000
		Post-test	-0.20	0.13	0.160
The bias of hostile attribution	Pre-test	Post-test	0.80	0.20	0.003
		Follow-up	-24.60	1.17	0.000
	Post-test	Pre-test	-0.80	0.20	0.003
		Follow-up	-25.40	1.25	0.000
	Follow-up	Pre-test	24.60	1.17	0.000
		Post-test	25.40	1.25	0.000

Discussion

The results of the present study indicated that dialectical behavior therapy decreased hostile attributes and high-risk behaviors in adolescents. In this regard, Santamarina Perez et al. investigated the effectiveness of an adaptive form of dialectical behavior therapy for adolescents (DBT-A) compared to treatment as usual form plus group sessions (TAU + GS) in reducing the risk of suicide for adolescents in a community mental health clinic. This study randomly divided 35 teenagers from a community outpatient clinic into two groups—18 people under adaptive dialectical behavior therapy for teenagers and 17 people under conventional treatment plus group meetings.

The participants fulfilled the Columbia Suicidality Severity Rating Scale (C-SSRS) and the Suicidal Thought Questionnaire (SIQ-JR). The results showed that dialectical behavior therapy for adolescents is more effective than conventional therapy in reducing non-suicidal self-injury (27). The finding are consistent with our results regarding the effectiveness of dialectical behavior therapy on high-risk behaviors. Also, Mohammadi et al. assessed 20 soldiers with symptoms of self-harm using the Barratt Impulsiveness Scale, Cognitive Emotional Regulation Questionnaire (CERQ-P), and Gratz's Self-Injurious Behavior Questionnaire. They revealed that group dialectical behavior therapy reduced impulsivity and improved technique emotion regulation in soldiers' self-harm behaviors (28). Also, Asarnow et al. compared the effectiveness of behavior therapy with individual and group supportive therapy in 173 teenagers with a history of suicide attempts.

The results indicated the usefulness of dialectical behavior therapy in reducing substance abuse, external behavior formation, and self-harm, as well as recovery of 49.3% of self-harm in the dialectical behavior therapy group during the follow-up period (29). This research has some limitations, such as the limited sample size of high school students and the small sample size that limits the generalizability of the results. It is suggested that researchers use this treatment in clinical groups with the presence of another intervention program, such as medication or other psychotherapy methods, and also compare the effectiveness of this treatment between the two genders.

Conclusion

According to the results, dialectical behavior therapy reduces hostile documents and high-risk behaviors in adolescents.

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Conflict of Interests

The authors declare no conflict of interest.

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Ethical Considerations

This research results from a master's thesis and is approved by Islamic Azad University, Neishabur branch.

Authors' Contributions

Mohammadreza Khodabakhsh: Study concept and design, supervising the research process and writing manuscript; Amir Jafari: Conducting intervention and statistical analysis; Masoud Bani Hasan and Mohammad Lachin: Data gathering, drafting of the manuscript, and final edition of the manuscript.

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