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Research Paper

The Effectiveness of Reality Therapy and Dialectical Behavior Therapy on the Health Locus of Control in Diabetic Patients

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ABSTRACT

Objective: The present study aimed to compare the effectiveness of reality therapy and dialectical behavior therapy (DBT) on the health locus of control (internal, powerful others, and chance) in women with type 2 diabetes.

Methods: This quasi-experimental research employed a pre-test, post-test and a two-month follow-up design with a control group. The statistical population of the study included all women with type 2 diabetes visiting the specialized diabetes clinic in Pardis, Shiraz City, Iran in 2024. A total of 45 eligible participants were selected for the study. They included females participants aged 40 to 60 years, with at least one year since the diagnosis of type 2 diabetes. They were randomly assigned to two experimental groups and one control group. The experimental groups underwent 12 sessions of 90 minutes of reality therapy and 12 sessions of 90 minutes of DBT, while the control group received no intervention. The health locus of control questionnaire was used to assess the three groups at three stages: Pre-test, post-test, and follow-up. The data were analyzed using descriptive statistics and mixed analysis of variance methods.

Results: The results showed a significant difference in the mean scores of health locus of control between the experimental groups and the control group. The Bonferroni post hoc test results yielded a significant difference between the control group and the experimental groups at the post-test and follow-up stages. However, the results suggested that the difference between the two experimental groups, reality therapy and DBT, was not statistically significant at the post-test and follow-up stages ($P>0.05$). Nevertheless, the mean difference suggested that reality therapy led to an increase in internal health control and control by powerful others, while reducing chance control in patients. However, this difference was not statistically significant.

Conclusion: Considering the study results regarding the effectiveness of reality therapy and DBT in increasing health locus of control in women with type 2 diabetes, their use is recommended for promoting appropriate health control in women with type 2 diabetes.

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Highlights

- To achieve better results, psychologists and psychotherapists have shown interest in the integration of psychological treatment programs, demanding the scientific investigation of this issue.

- The interventions in this research had a positive effect on the health locus of control in patients, proving the benefit of incorporating these programs into the treatment process.

- No difference was observed between the combined interventions of this research in health locus of control in women with type 2 diabetes.

Plain Language Summary

This study was conducted to evaluate the effectiveness of reality therapy compared to dialectical behavior therapy (DBT) on the health locus of control in women with type 2 diabetes. This quasi-experimental study was conducted in Shiraz City, Iran, involving 45 participants randomly assigned to two intervention groups and one control group. The health locus of control questionnaire was used for data collection, and the results were analyzed using a mixed analysis of variance. The results revealed significant improvements in health locus of control scores for the reality therapy and DBT groups compared to the control group. This outcome underscores the importance of addressing health control improvement in women with type 2 diabetes and demonstrates the effectiveness of these approaches in appropriate health management.

Introduction

Diabetes is one of the common chronic endocrine diseases and considered a significant public health concern worldwide. It is characterized by high blood glucose levels resulting from varying degrees of the body's resistance to insulin or impaired insulin secretion (Alshaiban & Joseph, 2020; Martino et al., 2019). The number of diabetic patients worldwide exceeds 250 million, and it is predicted to rise to over 438 million by 2030 (Izzo et al., 2021). Infante (2023) stated in his study that the global prevalence of diabetes is increasing, and it is estimated that approximately 1.31 billion people will have diabetes by 2050.

One aspect that helps identify individuals with diabetes and assists patients and medical staff in better assessing disease control is the monitoring of health indicators (Akbarzadeh & Hashemi, 2025; Eszabo et al, 2015). One of the health indicators that affects both the disease process and the quality of life of patients with diabetes is an individual's perception of the health locus of control (Nuccitelli et al., 2018). The health locus of control is multidimensional, relating to internal, external, and chance factors (Wallston et al., 1978). Those with an external health locus of control believe that others, such as doctors and healthcare providers, determine specific health outcomes.

In contrast, individuals with an internal health locus of control believe that particular health outcomes are the result of their behaviors, actions, and choices, which determine their health. Finally, those with a chance health locus of control believe that specific health outcomes are the result of luck, fate, and chance, which determine their health (Halse et al., 2021; Giandalia et al., 2019; Berglund et al., 2014). Studies indicate that an internal health locus of control is significantly associated with positive health outcomes. In contrast, an external health locus of control is linked to negative health outcomes such as lower self-care and self-efficacy, lower self-esteem, and higher levels of anxiety and depression (Marton et al., 2021; Williams et al., 2016).

In recent decades, in addition to medication, behavioral and psychological interventions have been used for the prevention and control of diseases. Utilizing therapeutic approaches to address and prioritize the psychological needs of patients aims to enhance health, improve resilience, increase hope for life, and reduce symptoms of illness and side effects associated with conventional biological unavoidable treatments (Gallone et al., 2018; Gao et al., 2020).

One of the therapeutic approaches influencing the treatment process for patients with type 2 diabetes is dialectical behavior therapy (DBT). DBT is a method derived from cognitive-behavioral therapy that focuses

on behavioral changes (McKay et al., 2007). In DBT, the treatment orientation helps patients control their activities, teach behavioral skills, solve life problems, seek pleasure, and achieve a better emotional state (Ben-Porath, 2015). DBT proposes four intervention components: Fundamental mindfulness, distress tolerance, emotional regulation, and interpersonal effectiveness. Therefore, using DBT skills and techniques can lead to better emotional self-control and manage troublesome and intense emotions that often stem from genetic foundations and adverse experiences (Gallagher et al., 2020; Kazemi et al., 2021).

Another psychological approach that has been the focus of various studies regarding its effectiveness on the treatment process of patients with type 2 diabetes is reality therapy. This approach is one of the latest efforts by therapists to describe humans, establish behavioral rules, and achieve satisfaction, happiness, and success. In this therapeutic method, facing reality, accepting responsibility, and making moral judgments about right and wrong behavior are emphasized, leading to a successful identity (Glasser, 2000; Howatt, 2018).

Various studies emphasizing the concepts and theoretical frameworks related to psychological treatments for chronic patients suggest that psychological interventions are effective in altering the health locus of control of patients. In this regard, Zweidawi and Safarzadeh (2020) in their study conducted on women with obsessive-compulsive disorder showed that reality therapy improves internal locus of control and reduces external locus of control in patients. Golvarz and Oreyzi Samani (2023) in their study on women with type 2 diabetes demonstrated that reality therapy increased the level of self-care among women with type 2 diabetes. Rafiei et al. (2020) also showed that cognitive-behavioral stress management therapy was effective in enhancing internal locus of control and resilience. Additionally, Ashouri et al. (2018) indicated that both meaning therapy and DBT significantly improved the general health and quality of life of patients. They also demonstrated that meaning therapy, compared to DBT, significantly improved the overall health and quality of life of patients.

Various studies emphasizing the concepts and theoretical frameworks related to psychological treatments for chronic patients indicate that psychological interventions affect patients' health locus of control (Golestani et al., 2021; Rafiei et al, 2020; Ashouri et al., 2018).

Numerous studies have been conducted on the role of psychological interventions alongside medical interventions to manage this disease and its related complications. However, there have been no studies comparing the two therapeutic approaches of reality therapy and DBT and their impact on the health locus of control in women with type 2 diabetes. Therefore, there is a need for research aimed at assessing the effectiveness of group DBT and reality therapy on health locus of control in women with type 2 diabetes. The main research question is whether group DBT and group reality therapy are effective on health locus of control in women with type 2 diabetes.

Materials and Methods

This quasi-experimental study employed a pre-test, post-test and follow-up design along with control groups. The participants were women with type 2 diabetes who visited the diabetes clinic in Pardis, Shiraz City, Iran, in the spring of 2024. Initial contact was made with the head of the diabetes clinic to form the sample group. A call for participation in the therapy group was made at the same clinic. Among those, 100 individuals registered, and 45 eligible participants underwent clinical interviews to confirm the diagnosis (Figure 1). Inclusion criteria for the study included: Being female, age between 40 to 60 years, having been diagnosed with type 2 diabetes for at least one year (based on medical records), consent to participate in the educational-therapeutic program, informed consent to participate in the research, having at least literacy skills, not using other psychological services simultaneously or within the past 6 months, lacking severe neurological disorders such as psychosis as determined by a physician, and having the physical ability to participate in the research. Exclusion criteria included: Missing more than two therapy sessions and unwillingness to continue therapy sessions.

To examine the normality of the data, the Shapiro-Wilk test was used. To test the research hypotheses, a mixed analysis of variance, the Bonferroni test, and a dependent t-test were employed. Data analysis was done using SPSS software, version 21.

Study tools

Health control locus questionnaire

This self-report questionnaire was designed by Wallston et al. (1978) to assess individuals' health locus of control (Wallston et al., 1978). This 18-item scale measures internal locus of control, chance locus of control, and powerful others locus of control on a 6-point Likert scale, ranging from "strongly disagree"=1 to "strongly agree"=6. The minimum score is 18, and the maximum

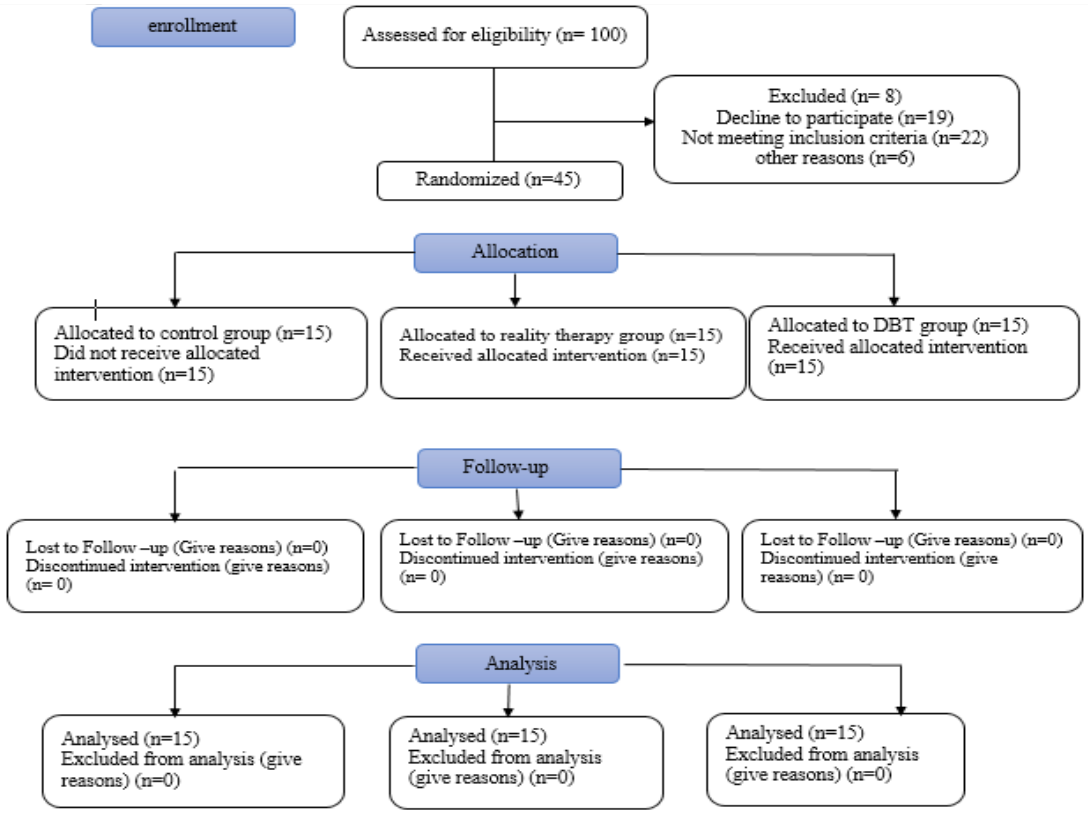

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Figure 1. The CONSORT flow diagram of the three study groups: Control group, reality therapy group, and DBT group

score is 108. In the study by Wallston et al. (1978), the content validity was confirmed, and the reliability of this questionnaire was estimated using the Cronbach α coefficient, with internal consistency being 0.68, chance consistency being 0.74, and others consistency being 0.50. The Kuder-Richardson reliability coefficient for each of the scales—internal locus of control, locus of control related to powerful others, and chance locus of control—was reported as 0.50, 0.61, and 0.77, respectively. The concurrent validity of this questionnaire in the study by Moshki et al. (2007) was assessed for chance, external, and internal factors, yielding values of 0.53, 0.49, and 0.57, respectively.

Description of DBT and reality therapy group interventions

In this research, the SOLAR model, presented by Linehan (2015), was used to teach DBT skills to adults. This model is based on the DBT skills training manual, translated by Alavi (2015). It consisted of 12 sessions of 90 minutes each. For teaching the reality therapy protocol, the book "reality therapy for the 21st century" written by Robert Wubbolding (2013) and translated by Sahabi (2019), along with the "12-week weight loss program" by Kim Allover translated by Sahabi and Eskandari (2019), were utilized in 12 sessions of 90 minutes each. It is worth mentioning that the training was conducted by the author in coordination with the professors.. The summary of the training sessions for this protocol is presented in Table 1.

Results

The Mean±SD age for the reality therapy were 46.54±5.55. For the DBT group, the Mean±SD was 57.26±2.37. The Mean±SD control group had 53.20±5.86. To examine the normality of the data, the Shapiro-Wilk test was used. The results of the index indicated that the research data in all three groups and at all three time points for the two variables had a normal distribution (between 0.86 and 0.96) at a significance level of P>0.05. Additionally, the homogeneity of variance (Levene's test) for the three variables was examined. The chi-square statistic was found to be 0.23 with a P=0.09; therefore, the hypothesis of equal variances is allowed. The assumption of homogeneity of regres-

Table 1. Summary of the content of DBT and reality therapy training

Content of Reality Therapy	Content of DBT	Session
Introduction and familiarization of members, establishing effective communication with group members, determining the structure of sessions, outlining rules and regulations, stating goals and objectives, introducing the training course, obtaining commitment, and conducting a pre-test.	Introducing and familiarizing members, establishing appropriate communication with group members, determining the structure of meetings, stating rules and regulations, outlining goals and presenting the training course, obtaining commitments, and conducting questionnaires for pre-testing	1st
Introduction to choice theory and reality therapy: An overview of the reasons behind behaviors, the five basic needs of humans, and helping individuals recognize their own needs. This includes defining the desired world and providing assignments for the next session.	Training in mindfulness skills: Familiarization, analytical mind; skills of 'what is' mindfulness; skills of 'how to' mindfulness; assigning homework for the next session.	2nd & 3rd
Review of the assignments from the previous session, assessing individuals' perceptions and interpretations of their illness and its complications and consequences, introducing type 2 diabetes in simple language; what do you want? Introducing overall behavior and its components, the behavior machine metaphor, introducing the four types of conflicts, assigning homework for the next session.	Review of the assignments from the previous session, training in distress tolerance skills (attention shifting, self-soothing, moment enhancement, acceptance of reality, desire, mindfulness towards thoughts), lifestyle training, assigning homework for the next session.	4th & 5th
Review of the assignments from the previous session, conducting a meditation exercise to demonstrate the effectiveness of changing actions and thoughts on feelings and physiology, introducing 7 destructive behaviors in human relationships, introducing 7 constructive behaviors in relationships, reviewing past successes, the role of negative self-talk, assigning homework for the next session	Review of the assignments from the previous session, training in emotion regulation skills (understanding emotions, recognizing and naming emotions, increasing positive emotions), introducing type 2 diabetes in simple language, assigning homework for the next session	6th & 7th
Review of the assignments from the previous session, introduction to internal control, training on the 10 principles of choice theory, neuroplasticity and changing our beliefs about change, developing a concrete plan to avoid external control and submission to it, introduction goal setting, assigning homework for the next session	Review of the assignments from the previous session, training in emotion regulation skills (mindfulness towards emotions, opposite action, problem-solving), assigning homework for the next session.	8th & 9th
Review of the assignments from the previous session, training on self-assessment, discussion about the alignment of values and behavior, training on the 5 levels of commitment, evaluating a plan and the characteristics of an effective plan, implementing the plan and examining its drawbacks, assigning homework for the next session	Review of the assignments from the previous session, training in interpersonal effectiveness skills (understanding barriers, clarifying goals; technique until completion; puzzle technique, equation; evaluating options), assigning homework for the next session.	10th & 11th
Review of the assignments from the previous session, discussion about the goals and the extent to which group members have achieved them, overall review of all the concepts of the course, answering questions, conducting a post-test, providing necessary explanations about the follow-up program, thanking and appreciating the participants and giving gifts to the participants, concluding the therapy sessions	Review of the assignments from the previous session, discussion about the consequences of applying the techniques, receiving feedback from group members, conducting a post-test, providing necessary explanations about the follow-up program, thanking and appreciating the participants, and giving gifts to the participants, concluding the therapy sessions	12th

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sion slopes was also met for the three variables. Hence, this assumption for conducting parametric tests holds. Furthermore, the results of the two-way analysis of variance with repeated measures on one factor (mixed analysis of variance) for the two research variables are presented in Table 2.

Based on Table 1, the chi-square statistic for comparing the frequency of education levels among the three groups is 2.64, which is not statistically significant (Sig.=0.619). The chi-square statistics for comparing the frequency of employment status among the three groups is 2.30, which is also not statistically significant (Sig.=0.663). The chi-square statistics for comparing the frequency of marital status among the three groups is 257, which is again not statistically significant (Sig.=0.879). All the obtained information indicates that the three groups are equivalent in terms of all demographic information of women with type 2 diabetes.

Table 2. Demographic information of women with type 2 diabetes

Variables	Execution Order	No. (%)			Chi-square	Sig.
		DBT (n=15)	Reality Therapy (n=15)	Control Group (n=15)		
Education	Below high school	4(37)	6(40)	6(40)	2.64	0.619
	Diploma and associate	9(60)	7(47)	5(33)		
	Bachelor's degree and above	2(13)	2(13)	4(37)		
Occupation	Housewife	13(88)	12(80)	10(67)	2.30	0.663
	Employee	1(6)	1(6)	3(20)		
	Retired	1(6)	2(14)	2(13)		
Marital status	Married	12(80)	11(63)	12(80)	2.57	0.879
	Single (widowed, divorced)	3(20)	4(37)	3(20)		
A1c	6.5-7.5	7(47)	9(60)	8(53)	2.78	0.763
	7.6 to up	8(53)	6(40)	7(47)		

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The results of Table 3 indicate that, considering the significance of the interaction between research groups and execution orders in the Two-way analysis of variance (ANOVA) with repeated measures on one factor for the internal control variable (F=14.611, P<0.01) and the external control variable (effective individuals) (F=20.526, P<0.01) and external control (chance) (F=56.492, P<0.01), which demonstrates a significant difference among the 9 means compared in the analysis of each variable. Therefore, the results show a significant difference in the mean scores of health locus of control between the experimental groups and the control group. Furthermore, to examine the effectiveness of the two treatments in the research and compare them, the mean differences of paired scores from the pre-test and post-test in three research groups were compared using the Bonferroni post hoc test, the results of which can be seen in Table 4.

In Table 4, it can be observed that the effectiveness of DBT and reality therapy groups on the health locus of control variables is significant (P<0.01). Both DBT and reality therapy increased internal control and decreased external control and chance. However, the comparison of the effects of the two intervention approaches on the dependent variables indicates no difference between the DBT group and the reality therapy group regarding the health locus of control (internal and external) (P>0.05). Therefore, the results of the mean difference between the two therapeutic groups indicate that the reality therapy experimental group has a greater impact on the internal locus of control in diabetic patients compared to the DBT experimental group, but this difference is not statistically significant. Finally, to examine the durability of the effectiveness of the interventions, a paired sample t-test was conducted on the paired scores between the post-test and follow-up data, separated by the two experimental groups. The results for the DBT group showed no significant differences for the internal locus of control (t=-1.96, P=0.070), the effective locus of control (t=1.38, P=0.189), and the chance locus of control (t=1.14, P=0.271). Additionally, in the reality therapy group, the results were as follows: For the internal locus of control (t=-1.43, P=0.054), for the effective locus of control (t=1.74, P=0.104), and the chance locus of control (t=1.78, P=0.096). These findings indicate the durability of the effectiveness of both interventions on the two dependent variables over time.

Discussion

In the present study, the impact of two methods, reality therapy and DBT, on the health locus of control was examined. The results showed that the participants in the experimental groups (reality therapy and DBT) had a significant difference compared to the control group in all three components of the health locus of control (internal, effective individuals, and chance). This difference was maintained for up to 2 months after the treatment ended. The results of the research findings are similar

Table 3. Two-way ANOVA with repeated measures on one factor

Variables		Source of Variance	SS	df	MS	F	Effect Size η^2_p
Health locus of control	Internal	Between subjects					
		R (Rows dialectics, reality: Therapy, control)	143.170	2	71.585	8.693**	0.293
		S/R (error 1)	345.867	42	8.235		
		Within the subjects					
		C (columns: Pre-test, post-test, follow-up)	108.459	2	54.230	46.106**	0.523
		C×R (interaction of rows and columns)	68.74	4	17.185	14.611**	0.410
		C×S/R (error 2)	98.800	84	1.17		
	Powerful others	Between subjects					
		R (rows dialectics, reality: Therapy, control)	620.370	2	310.185	30.442**	0.592
		S/R (error 1)	427.956	42	10.189		
		Within the subjects					
		C (columns: Pre-test, post-test, follow-up)	64.459	2	32.229	45.289**	0.519
		C×R (interaction of rows and columns)	58.430	4	14.607	20.526**	0.494
		C×S/R (error 2)	59.778	84			
	Chance	Between subjects					
		R (rows dialectics, reality: Therapy, control)	69.215	2	34.607	8.698**	0.293
		S/R (error 1)	167.111	42	3.979		
		Within the subjects					
		C (columns: Pre-test, post-test, follow-up)	98.681	2	49.341	163.891**	0.796
		C×R (interaction of rows and columns)	68.030	4	17.007	56.492**	0.729
C×S/R (error 2)			25.289	84	25.289	84	0.301

η^2_p: Partial eta squared.

**P<01.0.

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Note: The results of the analysis of variance for the assumption of covariance matrix sphericity using Mauchly's test indicate the establishment of the sphericity assumption: Mauchly's W=0.878, Approx. The chi-square test=3.347, df=2, P>0.069.

to the results of the studies by Zweidawi et al. (2020), Golvarz and Oreyzi Samani (2023), Guo (2020), Porath (2019), Rafiei et al. (2020), and Ashouri et al. (2018).

To explain the role of reality therapy in influencing health locus of control in diabetic patients, it can be said that health locus of control is a concept that indicates the source of control over behavior. Individuals' beliefs about their abilities to control situations may affect the intensity of stress they feel in a stressful situation. If a person has an internal locus of control and believes that their fate is in their own hands, they can bring significant events in their life under their control and cope with stress. However, someone with an external locus of control may feel powerless and believe that they cannot change the course of events. In this context, individuals' attitudes and explanatory styles can influence their health predictions and behaviors (Botha & Dahmann, 2024).

Table 4. Comparing mean differential scores of pre-test and post-test in three research groups

Health Locus of Control							
Variables	**Group**	**Execution Order**	**Mean±SD**	**Mean Differential Scores**	**Dialectical Behavioral Therapy**	**Reality Therapy**	**Control**
			Index				
Internal	Dialectical behavioral therapy	Pre-test	31.33±2.38	-2.23	-	-0.888	1.600**
		Post-test	33.66±1.71				
		Follow-up	34.26±1.33				
	Reality therapy	Pre-test	31.86±1.64	-3.00	0.888	-	2.488**
		Post-test	34.87±1.59				
		Follow-up	35.20±1.20				
	Control	Pre-test	31.66±2.38	0.600	-1.600**	-2.488**	-
		Post-test	31.06±2.25				
		Follow-up	31.73±1.98				
Powerful others	Dialectical behavioral therapy	Pre-test	25.60±2.06	-2.13	-	-1.11	-5.00**
		Post-test	27.73±2.21				
		Follow-up	27.53±1.88				
	Reality therapy	Pre-test	26.20±2.00	-2.93	1.11	-	-3.88**
		Post-test	29.13±1.88				
		Follow-up	28.86±2.03				
	Control	Pre-test	32.26±1.86	0.40	5.00**	3.88**	-
		Post-test	31.86±1.88				
		Follow-up	31.73±1.83				
Chance	Dialectical behavioral therapy	Pre-test	14.33±1.49	2.66	-	0.177	-1.42**
		Post-test	11.66±1.23				
		Follow-up	11.33±1.39				
	Reality therapy	Pre-test	14.20±1.32	-2.80	-0.177	-	-1.60
		Post-test	11.40±1.18				
		Follow-up	11.201.08				
	Control	Pre-test	13.66±0.97	-0.20	1.42**	1.60**	-
		Post-test	13.86±1.06				
		Follow-up	14.06±1.27				

**P<01.0.

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Note: Considering the failure to establish Mauchly's W, the degrees of freedom within subjects have been adjusted using the modified Epsilon Greenhouse-Geisser coefficient: Mauchly's W=0.536, Approx. The chi-square=25.555, df=2, P<0.01, Epsilon Greenhouse-Geisser=0.683. The results of the analysis of variance for the assumption of covariance matrix sphericity using Mauchly's test indicate the establishment of the sphericity assumption. Mauchly's W=0.952, Approx. The chi-square=2.009, df=2, P<0.366.

Diabetes can lead patients to recognize their perceived abilities in daily, occupational, and family activities as disrupted, feeling incapable of coping with the disease and seeing themselves at risk of irreversible complications of diabetes (Mallick et al., 2024). These patients have a negative attitude toward their illness, considering it uncontrollable, chronic, and serious, believing that they can neither take effective action for their illness nor expect others (such as doctors) to do so; consequently, they await a miracle or luck in facing the disease (Cvengros et al., 2005). Therefore, group reality therapy emphasizes that individuals can experience different outcomes in their lives by changing their choices (Stutey & Wubbolding, 2018). In reality, therapy sessions taught individuals to control their lives more effectively by making informed choices. They learned that in the context of illness, choosing different behaviors could lead to different emotional and physiological changes for them. Members indirectly learned that only changes in actions and beliefs can lead to positive experiences of emotions and bodily changes, such as reduced blood sugar levels (Oraki et al., 2013). Thus, reality therapy can lead to a shift from external control (chance) to internal control, resulting from changes in patients' attitudes.

Therefore, reality therapy emphasizes that two aspects of actions and thoughts are effective factors on emotions and bodily changes, and individuals can experience better emotions when they change their beliefs (Glasser, 2000). Individuals in the reality therapy group learned that by choosing appropriate behaviors aimed at controlling their illness, they could reduce their stress in life. By performing exercises outside of sessions that emphasized choosing the right behaviors for a healthy lifestyle, group members experienced the consequences of their choices, which was the reduction of negative emotions. By adhering to dietary plans (sugar-free), they achieved a desirable lifestyle and managed destructive thoughts and behaviors, leading to health control and self-care (Glasser, 2000).

Regarding the explanation of the results obtained from the effectiveness of DBT on health locus of control (internal, powerful others, and chance) in diabetic patients, it can be said that an internal locus of control leads to a sense of control and reduces individuals' stress because an external locus of control, if severe, can cause serious psychological problems for the individual. The shift in external locus of control has attracted the attention of many researchers and psychotherapists. Changing the external locus of control is possible because locus of control is not a trait. Therefore, it is not assumed to be generally fixed and resistant to changes (Hejbari, 2023). Diabetic patients perceive their lives and illnesses as resulting from external chances and probabilities beyond their control. Accordingly, having luck and external chances leads them to believe they can have better care behaviors, as they think many of the factors causing and exacerbating their illness are beyond their power and will (internal control) or that of important others (like doctors). DBT places mindfulness at the center of its approach, effectively enhancing disease management by increasing individual focus and teaching the practice of living in the present moment, as well as adopting non-judgmental approaches (Ramaiya et al., 2018). The core of DBT is mindfulness skills and emotional regulation, which teach patients to be aware of their emotions, thoughts, and behaviors, confront their feelings, and act consistent with their values, rather than succumbing to intense emotional urges. Additionally, practicing non-attachment of thought and emotion is highly effective for emotional regulation and reducing instability and impulsivity (Kim & Yeo, 2017). Therefore, dialectical therapy, which utilizes communication skills, self-awareness, problem-solving, behavior control, seeking help, optimism, eliminating false beliefs, empathy, and decision-making power, can enhance hopeful and purposeful thinking in patients and thus contribute to improving both physical and psychological health (Aghili & Farhang, 2022).

One limitation of the present study is its lack of generalizability. Since this study was conducted solely on a group of women with diabetes, it is recommended that a study be conducted that separately addresses male and female groups, thereby increasing the ability to generalize the findings to a larger community.

Conclusion

Due to the significant effect of DBT and reality therapy on reducing blood sugar levels in women with type II diabetes, it is recommended that this treatment be used in diabetes treatment centers in the country for women with type II diabetes to improve diabetes control in these patients.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Karaj Branch, Islamic Azad University, Karaj, Iran (Code: IR.IAU.K.REC.1402.145). In this research, all ethical considerations in conducting the study and the data collection process, including ensuring participants'

confidentiality of their personal information, obtaining informed consent from participants, and providing proper referrals to resources, have been adhered to.

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Authors' contributions

Study design: Maryam Bahrami Hidaji and Mandana Jamali; Data analysis and supervision: Adis Kraskian Mojmbarii and Mohammad Hossein Dabbaghmanesh; Writing: Maryam Bahrami Hidaji; Final approval: All authors.

Conflict of interest

The authors declared no conflict of interest.

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