

Effect of Wellbeing Therapy on Depression, Anxiety and Blood Sugar in Women with Type 2 Diabetes

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Abstract

Introduction: Type 2 diabetes is a group of metabolic diseases whose common feature is elevated blood glucose levels due to defective insulin secretion, functional impairment, or both. This study aimed to investigate the effect of wellbeing therapy on reducing depression, Anxiety and controlling blood sugar in women with Type 2 diabetes.

Methods: This quasi-experimental research used a pretest-posttest experimental design with control and follow-up groups. A total of 52 patients were enrolled through convenience sampling from 100 patients [p1] [A2] with type 2 diabetes visiting the Persian Diabetes Center of Mashhad in 2019-20. They were then randomly assigned to two 26-member (experimental and control) groups. The intervention group received a Ryff psychological well-being program over the course of two months through eight 90-minute group therapy sessions, whereas the control group received no treatment. Data were collected before, after, the intervention using the Beck's Depression Inventory, Beck's Anxiety Inventory, and Hemoglobin A_{1c} (HbA_{1c}) test and then analyzed in SPSS 24.

Results: The results from the multivariate analysis of covariance (MANCOVA) showed that wellbeing therapy has a significant effect on depression, Anxiety, and HbA_{1c}.

Conclusion: Wellbeing therapy is effective in reducing depression, Anxiety and HbA_{1c} levels in type 2 diabetes patients. Therefore, it is recommended that this treatment approach be used to help improve the psychological well-being of these patients.

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Introduction:

Type 2 diabetes is a disorder of glucose metabolism with decreased production of insulin and its consumption by tissues, resulting in increased blood sugar (1). Type 2 diabetes is a chronic, common, and multifactorial disease; Which affects the health of millions of people around the world (2). According to the GBD⁵ report in 2015, the prevalence of diabetes increased from about 333 million in 2005 to about 435 million in 2015, an increase of 30.6%. During the same period, the annual death rate from diabetes increased from 1.2 million to 1.5 million (3). The prevalence of diabetes in the world is projected to increase from 4% in 1995 to 5.4% in 2025, and during this period the population of infected people will increase by 122% (4). In Iran, the number of people with diabetes is 7.7% of the population (5). Chronic hyperglycemia causes damage, dysfunction and failure of various organs, especially the eyes, kidneys, nerves and cardiovascular system (6). In addition to causing devastating physical effects, diabetes also has negative behavioral and emotional consequences; Diagnosis of diabetes has a significant effect on the mental function of patients, so that these patients usually report the symptoms of depression, guilt, guilt and anxiety after the diagnosis and during the treatment process and during adaptation to their disease (7). Much research has been done on the level of mental health in diabetic patients. Research shows that depression, anxiety, and adaptive disorders are the most common mental disorders in people with diabetes (8). In different studies, the prevalence of anxiety and depression was 35.4% and 64%, respectively (9), 6/43%, 6/45% (10), 30.5% and 34.8% Has been reported (11). In fact, there is evidence that diabetes can double the risk of developing psychological symptoms such as depression and anxiety (9). Research shows that anxiety is associated with diabetes, and the prevalence of anxiety disorders in diabetics is 20% higher than in normal people (5).

Anxiety also plays an important role in physical illnesses; Both types 1 and 2 diabetes are susceptible to anxiety; Anxiety disrupts blood sugar control in many patients with diabetes (11). Research has shown that anxiety is significantly associated with poor control of diabetes and even small stresses of daily life have been associated with poor metabolic control (2). On the other hand, anxiety has a high coexistence with depression and is one of the most common psychological problems associated with diabetes. The course of depression in diabetic patients seems to be more chronic and severe than other patients (5). Studies have shown that depression in chronic patients,

⁵ . The Global Burden of Disease: provides a tool to quantify health loss from hundreds of diseases, injuries, and risk factors, so that health systems can be improved and disparities can be eliminated

especially diabetics, in addition to leading to social and psychological consequences, is a risk factor for reducing self-care behaviors, lack of optimal blood sugar control and other diseases (12). Depression in patients with diabetes can exacerbate emotional problems such as stress, depression, and anxiety through anorexia, dietary irregularity, or refusal to accept insulin injections; Which leads to high levels of cognitive distortions in individuals, which in turn causes negative and dysfunctional emotions and causes the disease to progress (13). In the management of diabetes should be borne in mind that even when medication, diet and exercise are observed, there is still no guarantee to control blood sugar because stress and anxiety are still a factor in raising blood sugar (5). Unfortunately, these problems reduce the patient's ability to control the disease. What is clear is that diabetes care is complex and that many issues go beyond blood sugar control. A wide range of interventions are needed to improve outcomes (14). Therefore, it seems necessary to pay more attention to the mood of these patients.

HBA1c has been used as a reference test to assess blood sugar control in people with diabetes for more than three decades. The results of this test show what percentage of blood hemoglobin is combined with sugar, and the higher the percentage, the higher the mean blood sugar level. HBA1c levels are also important for regulating treatment and predicting the risk of complications of chronic diabetes. Percentage in HBA1c is associated with an increase of 15-20% in the risk of cardiovascular disease, and an absolute decrease of 1 to 2% significantly reduces vascular complications (15). Given the growing prevalence of diabetes and its complex etiology, Badiant adaptation strategies require changes in current management practices and treatment plans. This shift should be from purely physical variables to psychosocial factors affecting diabetes management and treatment plans (16). Because psychotherapy services in medical illness can reduce the need for costly medical services and increase patients' mental health, it is important to apply considerations based on effective psychotherapy approaches, so many psychological interventions are used simultaneously with medical interventions to control the disease (17-19). Welfare therapy has been designed primarily as a specific treatment strategy for emotional disorders, and as one of the main components of physical and mental health over the past two decades has attracted the attention of many psychologists and researchers and extensive research has been conducted on it. Its effectiveness in treating emotional and mood disorders and increasing mental well-being has been confirmed (20-21). Therefore, considering the significant statistics of diabetic patients in Iran and also considering the promising effects of positive therapies such as wellness therapy in the treatment of mood disorders, and considering the long-term effects of anxiety and depression for these patients, the present study aims to answer this question. "Is well-being based on the Reef model effective in depression, anxiety and glycemic control of diabetic patients?"

Methods:

This study was applied in terms of purpose and in terms of data collection, from the category of quasi-experimental designs, pre-test-post-test with control group. The statistical population of the present study consisted of patients with type 2 diabetes referred to Persian Diabetes Center in Mashhad in 1997-98. In order to sample patients with type 2 diabetes referred to Persian Diabetes Center, 52 patients were randomly selected based on entry and exit criteria and randomly divided into two experimental groups (26 people) and control group (26 people). Prior to the implementation of the plan, the patients' status was examined by the researcher in individual sessions. Then, in both groups, Beck Depression and Anxiety Questionnaires were administered and in order to assess the level of glycosylated hemoglobin, Hb A1C hemoglobin test was performed by a physician at the Diabetes Center as a pre-test. Introducing welfare therapy, obstacles in welfare therapy, identifying irrational beliefs, self-esteem, introducing the six dimensions of welfare therapy and training to change the six damaged dimensions to the optimal level, positive thinking and looking at life from its good aspects. At the end of the eighth session, both groups completed the Beck Depression and Anxiety Inventory again and the Hb A1C hemoglobin test was performed as a post-test after the end of the training period. Table 1 shows the content of the welfare therapy sessions. Criteria for entering the project were: referring to one of the doctors of Persian Diabetes Center and having a medical record with the treating physician, diagnosis of type 2 diabetes, female gender, having a minimum degree of diploma, age range between 35 to 65 years, diagnosis of type 2 diabetes At least 4 years before the study, no severe mental or physical disorder, having a moderate depression score in the Beck Depression Inventory - Second Edition (BDI-II), having a moderate anxiety score in the Beck Anxiety Inventory (BAI), not receiving a minimum of psychological treatments One month prior to entering the scheme, have not undergone formal diabetes control training, the patient agrees to participate in the study based on the signing of a written consent form. Exclusion criteria were: Having type 1 diabetes, having complete criteria for psychological disorders in axis I in accordance with the rewritten text of the fifth edition of the Statistical and Diagnostic Manual of Mental Disorders (DSM-5: Diagnostic and Statistical Manual of Mental Disorders). Fifth Edition) that exists before the sessions at the discretion of the clinical psychologist, substance abuse and abuse, receiving psychological and other medical therapies at the same time as the research, serious suicidal thoughts and absenteeism for more than two sessions in order to comply with research ethics. Obtaining the consent of all patients to participate in the research project and the lack of knowledge of clients about comparing their conditions with another group, was considered (22).

The following tools were used to collect data: 1 Beck Depression Inventory - Second Edition BDI-II: BECK Depression Inventory (II) This questionnaire is a revised form of the Beck Depression Inventory (BDI). Which has been developed to assess the severity of depression in adolescents and adults; This questionnaire, like the first edition, consists of 21 items, in which the subject chooses one of the four options for each item, which indicates the severity of his depression. Each item receives a score between 0 and 3, thus giving the whole questionnaire a range of 0 to 63. The

suggested cut-off points for this questionnaire are as follows: Mild Depression Score 0-13, Mild Depression Score 14-16, Moderate Depression Score 20-28, Severe Depression Score 29-63. The BDI-II guideline does not specify a cut-off point for the absence of depression. Its review validity coefficient is obtained as 0.93 in one-week interval (23). Research shows that the internal consistency coefficient of this test is between 0.89 to 0.94 (24). In the Iranian sample, the validity coefficient is 0.92 and the reliability coefficient is /91 (25).

The Beck Anxiety Inventory (BAI) is a 20-item scale with a Likert grade from zero to three. The total score is in the range of 0 to 60. Beck et al. (1996) obtained a one-week test retest coefficient of 0.93% (26). Rafiei and Seifi reported the reliability of the questionnaire using Cronbach's alpha of 0.92% in the student population (27).

Glycosylated hemoglobin test (HbA1c): This test is a standard method for assessing and controlling long-term blood sugar. When plasma throat levels increase steadily, non-enzymatic binding of glucose to hemoglobin also increases. Two to three months have passed (because the average lifespan of erythrocytes is 120 days (28).

According to the American Diabetes Association, the normal range of glycosylated hemoglobin in a healthy person is 4 to 6%, and for proper control of diabetes in patients, the number is below 7%, and a level above 7% of glycosylated hemoglobin indicates poor blood sugar management; Therefore, the goal of successful diabetes treatment is to reduce the hemoglobin level of HbA1c to less than 7% (29).

Therefore, for all participants in the treatment plan, HbA1c hemoglobin test was performed twice before and after 8 sessions of welfare therapy intervention in order to know how hemoglobin changes in diabetes. Because blood sugar control is associated with a decrease in HbA1c.

In data analysis, mean (standard deviation) was used to describe quantitative variables and frequency report (percentage) was used for qualitative variables. Before examining the research hypotheses to confirm the random distribution of individuals in the experimental and control groups, using independent t-test of two groups of homogeneity of size, depression, anxiety and blood sugar, the subjects were tested in two experimental and control groups. Covariance analysis was used and according to the level of significance of the variables for further analysis of the two experimental and control groups, each of the variables was compared separately using paired t-test in pre-test and post-test. Data analysis using SPSS-24 software was performed.

Table 1: Content of psychological well-being therapy sessions based on Reef model (1989) for patients with type 2 diabetes)

Meetings	Content
First	Clinical interviews, taking clients 'biographies and information about clients' feelings, current and past distress, and treatment history Recognizing the nature of the disease, including (pathology, symptomatology, types and complications) Includes (number of possible sessions, duration of sessions, interval between sessions and assigned homework, submission of forms, specification of bilateral commitments in the program). Introducing the concept of self-healing. Presenting the first task (welfare diary, happiness note)
Second	Review of welfare diary and problems related to its completion., Introduce the concept of optimal experiences, introduce monitoring of thoughts and behaviors that are detrimental to welfare.
Third	Examine the happiness note and the problems associated with completing it. Help to better understand which feelings and experiences make the patient feel better, including optimal experiences. Begin to understand which thoughts or behaviors lead to untimely disruption of well-being. Introducing the supervising column of the welfare diary table, continuing to work with homework (welfare diary, encouraging and planning activities)
Fourth	Browse the welfare diary and the problems associated with completing it. Help the patient understand which emotions and experiences make them feel better, including optimal experiences. Begin cognitive reconstruction of thoughts or behaviors that have led to untimely disruption of well-being, including writing in the observer column. One or two cognitive dimensions of well-being based on the information provided
Fifth	Reviewing the welfare diary and the problems associated with completing it, helping to understand and pursue optimal experiences, continuing cognitive reconstruction of thoughts or behaviors that have led to untimely disruption of welfare, including completing the observer column, introducing other psychological dimensions of welfare, and discussing How to adjust these dimensions, continue to do homework (welfare diary, encouraging and planning activities, graded homework)
Sixth	Examining the general condition of the patient, reviewing the welfare diary and following up on optimal experiences, reviewing cognitive reconstruction and coping with spontaneous thoughts in real life, introducing or discussing more

about the dysfunctional dimensions of psychological well-being according to what the patient has presented. Home (Welfare diary, encouragement and activity planning, graded assignments)

Seventh Assessing the general condition of the patient and feeling towards the end of treatment, reviewing the welfare diary and following up on optimal experiences, reviewing the welfare diary and following up on optimal experiences, reviewing cognitive reconstruction and coping with spontaneous thoughts in real life, strengthening strategies used to improve psychological well-being. Work with homework (welfare diary, exposure, activity planning), strengthen the client's desire to continue work (self-medication) after treatment

Eighth Examining the patient's feelings towards the end of treatment, reviewing the welfare diary, paying attention to the improvements that have occurred in different areas of welfare and the degree of distress, talking about the problems that hinder self-treatment with welfare therapy, emphasizing the importance of continuing treatment After the sessions (self-medication). Emphasize the availability of "reinforcing" sessions in the future, determine follow-up time, include WBT experience in the patient's treatment history, point out potential prospects for other treatments, schedule periodic appointments with the experimental group and present the results after data analysis - post-test

Results:

The demographic results of the study are given in Table 2.

Table 2: Demographic profile

Variable	group	Number	Average	Standard deviation
Age	The experiment	26	۵۳/۱۳	۹/۴۶
	Control	26	۵۵/۱۸	۱۰/۰۹
Weight	The experiment	26	۷۹/۰۴	۱۰/۰۷
	Control	26	۷۵/۰۱	۸/۲۶
Height	The experiment	26	۱۶۷/۳۱	۶/۰۶
	Control	26	۱۷۰/۰۳	۷/۰۱

As Table 2 shows the mean and age of the experimental group (53.13 ± 9.46) and control group (55.18 ± 10.09) was and the average weight of the experimental group (79.4 ± 10.7) and control group (75.01 ± 8.26) and the average height of the experimental group (167.31 ± 6.06) and control group (170.03 ± 7.01). Also, among the sample members in the experimental group, 15.4% were single, 61.5% were married, 23.1% were divorced, and in the control group, 7.7% were single, 80.8% were married, and 11.5% were divorced. 11.5% had a master's degree and in the control group 42.3% had a master's degree, 46.2% had a bachelor's degree and 11.5% had a master's degree.

Table 3: Homogeneity test of the studied variables in two independent groups

Pre-test variable	Treatment group	Average	Standard deviation	Statistics T test	p-value
Depression	Intervention	22.57	5.93	-1.037	0.305
	Control	24.03	4.05		
Anxiety	Intervention	25.50	5.32	-0.211	0.834
	Control	25.80	5.18		
Blood sugar	Intervention	7.49	0.42	2.48	0.017
	Control	7.27	0.23		

To examine the homogeneity of the distribution of individuals in the experimental and control groups, two independent sample t-tests were used. The results showed that there were no significant differences between the groups.

Table 4: Descriptive indices of variables in pre-test and post-test of experimental and control groups (mean \pm standard deviation)

group	Depression		Anxiety		HbA1c	
	The experiment	Control	The experiment	Control	The experiment	Control
pre-test	22.57 \pm 5.93	24.03 \pm 4.05	25.50 \pm 5.32	25.80 \pm 5.18	7.49 \pm 0.42	7.27 \pm 0.21
Post-test	18.19 \pm 5.50	26.19 \pm 4.02	14.92 \pm 4.94	25.38 \pm 5.62	5.94 \pm 0.57	7.30 \pm 0.32

Descriptive indices of research variables in pre-test and post-test in terms of intervention and control groups are given in Table 4. The mean scores of depressions in the experimental group in the pre-test and post-test groups were 22.57 and 18.19, respectively, and in the control group 24.03 and 16/16. The average scores of anxieties in the experimental group in the pre-test and post-test were 25.50 and 14.92, respectively, and in the control group were 25.80 and 25.38. The mean scores of glycosylated hemoglobin HbA1c in the experimental group in the pre-test and post-test were 7.49 and 5.94, respectively, and in the control group were 7.27 and 7.30.

Table 5: Results of analysis of covariance and controlled variables

Source of changes	sum of squares	Degrees of freedom	average of squares	Test statistics F	p-value
Pre-test anxiety	810.887	1	810.887	81.639	0.000
Treatment group	1008.738	1	1008.738	101.558	0.000
Age	12.482	1	12.482	1.257	0.268
Education	57.620	2	28.810	2.901	0.066
Group × Education	52.084	2	26.042	2.622	0.084
Error	437.035	44	9.933	99.491	0.000
Pre-test depression	717.551	1	717.551	51.652	0.000
Treatment group	372.529	1	372.529	0.020	0.887
Age	0.147	1	0.147	0.851	0.434
Education	12.268	2	6.134	0.257	0.775
Group × Education	3.706	2	1.853		
Error	317.338	44	7.212		

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Pre-test blood sugar	2.625	1	2.625	86.783	0.000
Treatment group	0.274	1	0.274	9.061	0.004
Age	0.020	1	0.020	0.652	0.424
Education	0.004	2	0.002	0.061	0.941
Group × Education	0.030	2	0.015		
Error	1.331	44			

In this study, the variables of anxiety, depression and blood sugar of the subjects were measured in two time periods, pre-test and post-test, and to control the results, the control group was used along with the experimental group. Also, age and education variables have been used as control variables. The fit of this model is given in Table 5 and according to the significance level of each of the variables in the table above, it is concluded that only the variables of depression, anxiety and blood sugar in the test and group Treatment affected the variables of depression, anxiety and post-test blood sugar. Therefore, for further analysis, the experimental and control groups were examined separately and each pair of variables in the pre-test and post-test were compared using paired t-test. The results of this comparison are given in Table 6.

Table 6: Paired t-test results in triple indices in experimental and control groups

Variable	Group	The level	Mean	Standard deviation	Statistics t test	p-value
Depression	Experiment	Pre-test	22.57	5.93	7.274	0.000
		Post-test	18.19	5.50		
	Control	Pre-test	24.03	4.05	-4.523	0.000
		Post-test	26.19	4.02		
Anxiety	Experiment	Pre-test	25.50	5.32	12.568	0.000
		Post-test	14.92	4.49		

	Control	Pre-test	25.80	5.18	0.808	0.427
		Post-test	25.38	5.62		
		Pre-test	7.49	0.42	11.33	0.000
HbA1c	Experiment	Post-test	5.93	0.57		
		Pre-test	7.27	0.21	-1.67	0.107
	Control	Post-test	7.30	0.23	-1.67	0.107

The results of the above table show the comparison of the means of depression, anxiety and HbA1c in the two intervention and control groups before and after the intervention. This means that the welfare therapy intervention for depression, anxiety and glycosylated hemoglobin (HbA1c) has been effective in patients with type 2 diabetes and has led to a reduction in depression and anxiety and glycosylated hemoglobin (HbA1c) in patients with type 2 diabetes.

Discussion and Conclusion:

In this study, the effectiveness of well-being on depression, anxiety and control of glycosylated hemoglobin (HbA1c) in women with diabetes mellitus was evaluated. Glycosylated hemoglobin) Depression anxiety is also significantly more progressive in diabetic patients (30). Despite the effective methods of pharmaceutical and medical sciences in controlling blood sugar and its adverse consequences, hyperglycemia usually leads to disability, premature death and widespread problems in social relationships (31). The use of behavioral interventions has been effective on it. In some studies, due to the role of chronic stress in insulin resistance and metabolic syndrome, combined group work has been emphasized as psychological and pharmacological interventions. Therefore, behavioral-cognitive components underlying the management of diabetes treatment Acceptance of illness, positive attitude, motivation to pursue education and treatment are included in intervention programs (16). In people with diabetes, positive thoughts and life expectancy decrease, and negative psychological factors such as negative emotions, anxiety due to fear of blindness, cardiovascular and renal complications increase. These negative emotions reduce the positive aspects of life and self-care. In patients with type 2 diabetes (32). People who have positive attitudes and emotions are more social, have more desirable interpersonal skills, and can easily build supportive social networks around them. Positive psychology, through simple and low-cost interventions, increases well-being and reduces symptoms of depression and anxiety. It is known that an example of this is welfare therapy interventions that under the influence of this treatment can reduce negative emotion and negative mood in the event of problems and accidents (33). This method causes positive emotion and positive mood and motivation. Strengthens self-care. As the results show, well-being therapy has an effect on depression, anxiety and glycosylated hemoglobin

in patients with type 2 diabetes and has reduced the scores of depression, anxiety and glycosylated hemoglobin in patients in the post-test intervention group; therefore, the results of this study indicate a positive effect. The treatment was for patients with type 2 diabetes. Considering that in the present study, the available information sources show that there is no similar published research on the effectiveness of psychological well-being treatment on depression, anxiety and blood sugar control in patients with type 2 diabetes. For the results of this study, it is compared with the results of studies related to similar variables and finally explained. In many studies, the use of wellness therapy and its usefulness in mood disorders has been confirmed (34-37).

The results of the present study showed that welfare therapy intervention reduces depression and anxiety in patients with type 2 diabetes; In line with this study, Siev et al. 2015 in a study on medical students stated that well-being therapy reduces depressive symptoms. Also, Nyer, Yang et al. in a study on the effect of well-being therapy on major depressive disorder and anxiety, stated that well-being therapy reduced depression and anxiety in patients (39,40). The results of Moinzadeh and zarif (2014) research on infertile women showed that well-being therapy reduced depression and anxiety in them, Nivo-nordisk in a study that examined the potential effects of well-being treatment stated that well-being treatment reduced depression (41-42).

Ghandahari also stated in the results of his study that welfare therapy intervention on obsessive patients increases positive emotion and decreases negative emotion which is a common cause of depression (43). Also, the results of the present study show that welfare therapy reduces blood sugar in patients with diabetes. Type 2 had an effect and led to a decrease in blood sugar in patients in the post-test intervention group. Ramesh et al. 2019, in their research results, stated that there is a positive relationship between depression and blood sugar control (44). Also, the results of Poulsen et al. 2016 study on the relationship between low glycosylated hemoglobin level and high self-management. Consistent study of Maessi, Huiffman, DuBoise and Khodabakhsh stated that positive psychological interventions promote well-being in people with diabetes. And more actively and motivated people manage their lives. In a review study, Frazier et al. 2012 reported the effectiveness and effects of positive psychology on diabetes, education based on positive psychology is effective in environmental characteristics of diabetes control and management that can be expressed. The mechanism of negative experiences is depression in the patient, which in turn affects these negative emotions in the patient's way of life (50-51). Research by Goorden et al. 2017 shows that emotional disorders have a negative effect on disease management that can lead to high blood sugar and accelerated diabetes (52). In addition, mental disorders with other mechanisms can affect lifestyle. On the other hand, greater self-awareness leads to better self-regulation and management, and a reduction in responses to emotional stimuli, and a reduction in impulsive responses is associated with increased well-being (54-55).

It can be said that since intervention and wellness therapy teach patients to take an active position in the world and to shape their lives personally, to express a picture of a good life clearly and to recreate the best things in any situation, they will act in any situation with the knowledge of their

abilities and capabilities. Due to the successes achieved, they will feel more in control of their living environment and will have an active position in the face of psychological difficulties in life and in the face of disease stressors. This study concludes that well-being therapy has an effect on type 2 diabetic patients and reduces depression, anxiety and hypoglycemia in type 2 diabetic patients. Therefore, it can be expected that providing appropriate solutions such as the implementation of educational programs such as welfare therapy, by creating positive thinking, looking at life in its good aspects and not focusing on the disease and increasing adaptation in diabetic patients promotes psychological well-being and reduces depression, anxiety. And lowering blood sugar in these patients to reduce the complications, problems and heavy costs of care and treatment of this disease.

Ethical considerations

Ethical considerations of the project included: written information about the research to the participants, reassuring the candidates about the confidentiality of the information and using it only in research matters, voluntary participation and obtaining written consent from the participants and finally according to Evidence that supports the effectiveness of well-being therapy in controlling blood sugar, reducing depression and anxiety in patients with type 2 diabetes, so in order to comply with ethical considerations, after the treatment, the above treatment was performed for the control group.

Research Limitations

The voluntariness of the study participants may affect the results of statistical analysis and thus have adverse effects on the internal validity of the research. Therefore, in generalizing and relying on the research results, this limitation should be considered in some way. Another limitation of this research is that the statistical population of this research consisted of patients with type 2 diabetes in Mashhad, so generalizing the results of this research to communities Other should be done with caution.

Applied research results

Therefore, due to the effectiveness of welfare therapy in the field of anxiety, depression and blood sugar control and the focus of this treatment method on pleasant events will strengthen the psychological strength of clients and will be an effective step to prevent other disorders. Also, the financial burden on the family due to the shorter treatment process, lower client costs and more desire to continue treatment. Considering that the data of this study have been collected with a limited volume and more accurate judgment needs to be considered for patients of both sexes with a larger volume and over a longer period of time. Studies with the content of examining the condition of these patients in the country are minimal, so conducting research with samples of both sexes and over a longer period of time to increase the generalizability of the results is recommended.

Conflict of interest

There is no conflict of interest between the authors

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