The Effectiveness of Group Psychotherapy Based on Acceptance and Commitment on Emotional Expressiveness and Self – Care behaviors in Patients with Type 2 Diabetes

ABSTRACT

Background and Objective: In line with increasing urbanization and lifestyle changes, diabetes has become a common disease, which puts many problems on the lives of infected people. The aim of this study was to evaluate the effectiveness of group psychotherapy based on acceptance and commitment on emotional expressiveness and self-care behaviors in patients with type 2 diabetes.

Materials and Methods: This quasi-experimental study was a post-test pre-test with control group. The statistical population of the study consisted of 36 women with type 2 diabetes referring to health centers under the Diabetes Association of Tehran in 2017-2018. The eligible participants were divided into experimental (18 people) and control (18 people) groups. The experimental group received 8 sessions of intervention using group psychotherapy based on acceptance and commitment, and the control group was placed on the waiting list. Data were collected in pre-test and post-test stages using emotional expressiveness questionnaire (Emmons & king) and Tober & Glasgow self-care behaviors questionnaire, and analyzed by MANCOVA analysis with SPSS v.23 software.

Results: Data analysis showed that there was a significant difference between the mean of emotional expressiveness and self-care of the experimental and control groups in the post-test stage. In other words, group psychotherapy based on acceptance and commitment significantly increased emotional expressiveness and self-care behaviors in patients with type 2 diabetes (P<0/001).

Conclusion: Considering the effect of group psychotherapy based on the acceptance and commitment on emotional expressiveness and self – care behaviors, it is recommended that psychiatrists, clinical psychologists and mental health professionals use this method to increase on emotional expressiveness and self – care behaviors in patients with type 2 diabetes.

Paper Type: Research Article

Keywords: Psychotherapy; Acceptance and Commitment; Emotional Expressiveness; Self-care; Type 2 Diabetes

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Introduction

Today, with increasing urbanization and lifestyle changes and the consequent outbreak of obesity, diabetes has become a common disease which puts many problems on the lives of infected people (1, 2). Over the past few decades, Among the three types of diabetes (type 1, type 2 and gestational diabetes), the prevalence of type 2 diabetes has dramatically increased in different societies and countries over the past few decades, and this increase in the prevalence rate continues. Thus, it can be said that the prevalence of diabetes has increased globally and its complications are tense in developing countries (3).

Among all types of diabetes, type 2 diabetes is non-insulin dependent, and is one of the diseases that is directly related to age increasing, and is commonly found in young adults especially in obese people (4). In this disease, the body is resistant to insulin and does not secrete enough insulin. World Health Organization Reports show that there were approximately 171 million patients with type 2 diabetes in 2000, and is projected to double this figure by 2030 and reach 366 million people (5).

Epidemiological studies in Iran also showed that more than 5% (between 2 and 3.5 million) of the population in Iran have diabetes, of which adults older than 30 years account for 7.4% of the population (6). The body mechanism in diabetes is disrupted in such a way that either the insulin released by the pancreas does not work well or the whole secreted insulin does not have good body function, which causes many problems, such as repeated injections of insulin, treatment costs, coercion compliance with the diet, successive infections, the possibility of frequent hospitalization, and restrictions on reproduction, family formation and employment for the patient and his family (7). All of them contribute to reducing the mental health of patients. In addition to physical problems, patients also have to deal with many psychological and behavioral problems (8).

Emotional health is one of the factors that has an effective role in exacerbating problems or improving the physical and psychological well-being of patients (9). The studies have shown that there are direct (10) and indirect (11) relationships between emotional expressiveness and therapeutic outcomes. Many physical and health problems such as inflammation of the intestine, physical inferiority, tension headaches and diabetes have relationship with difficulty and impairment of identification and expression of emotions and emotional expression plays an effective role in the health and psychological well-being of the patient group (12-15).

The emotional expressiveness is simply a form of expressing person›s feelings like smiling, crying, or many other behaviors that reflect feelings (16). Expressing emotional responses actually means the inner tendency to share or not sharing the emotions with others, which is also referred to as an emotional expressiveness (17). emotional expressiveness is defined by Kring et al. as an emotion exterior view, regardless of value (positive or negative) and method (verbal or physical) (18). Studies have shown that patients with type 2 diabetes have little ability to express emotion and this leads to exacerbation of the disease (19). Despite the negative consequences that emotion express impose on the individual, research suggests that emotion express in the long run (for example, after several weeks) has reduced

anxiety, depression, insomnia, negative mood, and inhibition and leads to increased mental health, reduced physical problems, reduced referral to health centers, improved social performance and increased self-esteem and self-care (20, 21).

The goal of self-care in diabetic patients is to allow patients modifying their diet and lifestyle alongside the support of the team members in order to have high self-esteem and ultimately control the disease (22). In line with improving physical health by self-care of patients, research suggests that self-care has many effects in managing the patients and improving their quality of life in the treatment process (23). In order to reduce emotional problems, anxiety control, depression and psychological complications caused by disease, various psychological interventions have been used in different studies. In recent years, there has been a third generation of approaches that can be generally called "acceptance and commitment model". The purpose of treatment in this approach is to increase the psychological connection of the individual with his thoughts and feelings. This means that one can eventually choose the best option among different choices and avoid his distracting thoughts, feelings and desires (24).

Several studies have been conducted to evaluate the effectiveness of third-wave therapies on the psychological and physical functions of this group (25-29). The researchers have shown that group psychotherapy based on acceptance and commitment requires a lower cost rather than other psychiatric treatments for diabetes and is more effective in the short term. By reviewing and summarizing the previous studies, it can be observed that several studies have examined the effectiveness of third wave therapies on the psychological functions of patients with diabetes, but many of these studies have undergone individual therapies and group psychotherapy has been less focused on prior research. Also, the background of the research indicates that investigating the group therapy on emotional problems and self-centered management has not paid much attention. Also, group treatments in which patients express their problems freely can provide the basis for more intimate relationships based on the value of the subjects and more motivation for managing the disease. Regarding these issues, the purpose of this study was to evaluate the effectiveness of group psychotherapy based on acceptance and commitment on emotional expressiveness and self – care behaviors in patients with type 2 Diabetes.

Methodology

This quasi-experimental study was a post-test pre-test with control group. The statistical population of the study consisted of all women with type 2 diabetes referring to health centers under the Diabetes Association of Tehran in 2017-2018 and its sample included 36 patients from this group who were divided into two experimental (18 people) and control (18 people) groups. This sample size was selected from the statistical population based on the research entry and exit criteria. In the first step, after obtaining the necessary permissions from participants, 83 persons were enrolled to enter the research. In the next step, after a semi-structured clinical interview and assessing inclusion criteria (having type 2 diabetes, ability to read and write, being in 30 to 55 years, completing the informed consent form) and inclusion criteria

(having Type 1 diabetes, having a history of receiving psychological treatment over the past year, having chronic physical conditions along with diabetes), 40 diabetic patients were selected. To participate in the next steps of the intervention, information was provided to the subjects and the subjects were divided into two groups (each 20) and the pre-test was taken from all the two groups. In the next step and by random method, one group was selected as the experimental group and the other as the control group through which the experimental group received an admission and commitment group psychotherapy intervention during 8 sessions (90 minutes each session). It should be noted that 4 subjects in the experimental group and 2 subjects in the control group refused to continue the study and their data was deleted in data analysis.

Emotional Expressiveness Questionnaire (EEQ)

This questionnaire designed by Emmons & King to assess the importance of emotional expressivity in individual's health. The 16-item scale is developed into 3 constructs: expression of negative emotion (4), expression of positive emotion (7), and expression of intimacy (5). Each item is answered on a 5-point Likert-type ranging from 1 (strongly disagree) to 5 (strongly agree) and higher scores indicate the higher emotional expressivity of the subjects (30).

Emmons & King determined the reliability of this instrument using the Cronbach's alpha coefficient in the subscales of expression of positive emotion was 0.70, expression of intimacy was 0.74 and it was 0.63 on expression of negative emotion. In Iran, Rafieinia et al. (31) measured the reliability of this scale using the internal consistency method and reported the Cronbach's alpha coefficient for expression of positive emotion, expression of intimacy and expression of negative emotion was 0.68, 0.56 and 0.59, respectively. This indicates the average level of reliability. In a study by Mahdavi et al. (32) by using the Cronbach's alpha method, the validity coefficient of 0.663 was obtained for the total emotional expressiveness questionnaire.

Summary of Diabetes Self – Care Activities (SDSCA) Measure

The questionnaire was designed by Toberw & Glasgow (33), a self-report questionnaire with 15 questions and examines the principles of self-care during the last week. In this questionnaire, various aspects of diabetes diet were examined (34) including diet (5 items), exercise (2 items), blood glucose test (2 items), insulin injections or taking anti-diabetes pills (1 item), foot care (4 items) and smoking (1 item). Each item is answered on a 7-point Likert-type and the total score is obtained by collecting scores for each item (35). Based on the total score, they are divided into three categories of poor self-care (score 0 to 33), moderate self-care (score 34 to 67) and strong self-care (score 68 to 99). Zareban et al. (36) assessed the validity and reliability of this questionnaire, and obtained reliability of the questionnaire through Cronbach's alpha (0.89).

Psychotherapy Based on Acceptance and Commitment

The treatment plan used in the present study was a therapeutic pattern used in a study by Behrouz et al. (37), which was performed in 8 sessions of 90 minutes, one day in a week by the therapists. A brief description of the content

and structure of group psychotherapy sessions based on acceptance and commitment was reported in Table 1.

Data were collected using emotional expressiveness questionnaire and SDSCA measure. For analyzing the data, multivariate covariance analysis (MANCOVA) has been used after confirmation of assumptions such as distance, linearity, normalization of variances (Kolmogorov Smirnov test), and data analysis was done using SPSS v.23 software.

Table 1: content Summary of psychotherapy sessions based on acceptance and commitment

Session	Session content	session	Session content
Pre-session	Getting to know patients and establishing therapeutic relationship with the aim of filling in the questionnaires correctly and building communication and trust: Implementation of demographic questionnaire and pre-test.	5	Showing separation between oneself, inner experience and behavior; See oneself as a context; Self-conceptual weakening and self-expression, Explaining the implications of the role and context, See oneself as a substrate and making calls using allegory
1	Introducing the therapist to the group members, Group members get acquainted with each other . Establishing a medical relationship : Introducing the treatment and structure of the sessions : Providing information about diabetes, and defining type 2 diabetes	6	Identifying patient's life values and focusing on these values using mindfullness techniques
2	Evaluating the willingness of group members to change; Investigate the making of creative hopelessness	7	Examining the values of each person and deepening the previous concepts; Difference between values
3	Identifying inefficient control strategies and find out their futility, Explaining the concept of acceptance and its difference with the concepts of failure, disappointment, denial, resistance	8	Understanding the nature of willingness and commitment, Identify behavioral patterns in accordance with values and make a commitment to them; Tips were expressed about the concept of relapse and readiness to deal with it
4	Introducing and understanding Conceptualized Self and Defusion; Application of cognitive defusion techniques; Intervention in the function of language-constraining chains, Weakening self loss of thoughts and emotions	post-session	Appreciation of patients for collaboration in research

Results

Demographic data analysis indicated that average age was 48.71 ± 7.92 in the experimental group and was 49.02 ± 7.29 in the control group. In both groups, housewives (76%) with high school diploma (53%) had the most frequency. In terms of economic status, in the experimental group 23% weak, 68% moderate and 9% had good economic status, indicating the similarity of the two experimental and control groups based on age, gender and education. The results of the descriptive findings using research questionnaires was presented in Table 2.

Table 2. Descriptive findings obtained from emotional expressiveness and self – care variables in two groups

Variables		Experimental Group		Control Group	
		Pre-test	Post-test	Pre-test	Post-test
		Mean (standard deviation)	Mean (standard deviation)	Mean (standard deviation)	Mean (standard deviation)
Emotional Expressiveness	Expression of positive emotion	15.87 (3.64)	27.33 (4.11)	16.40(6.27)	16.33 (7.05)
	Expression of intimacy	12.40(4.03)	20.33 (4.76)	12.87 (4.08)	13.47(4.10)
	Expression of negative emotion	8.00 (1.60)	15.47 1.65))	8.87(3.02)	8.87(1.10)
	Total score of Emotional Expressiveness	36.27(7.09)	63.13 (7.46)	38.13(9.13)	37.87(7.02)
Self – Care behaviors	Self – Care behaviors	34.60 (4.54)	60.93(11.64)	33.87(4.54)	35.20 (4.82)

In posttest, descriptive data analysis showed that the mean scores of expression of positive emotion, expression of intimacy, expression of negative emotion and total score of emotional expressiveness in the experimental group increased compared to the control group, which indicates an improvement in the emotional expressiveness of the people in the intervention based on acceptance and commitment. Also, the self-care behaviors of patients with type 2 diabetes score in experimental group had improved versus control group, indicating an improvement in this variable. Multivariate covariance analysis (MANCOVA) was used to show a significant difference between the post-test scores and the modulation of the pre-test in two experimental and control groups. In the first step, in order to study the predictions of multivariate covariance analysis, Shapiro-Wilk Test was used to examine the distribution of the variables and the results were confirmed (P >0.05). The Mbox Test also confirmed the homogeneity of variance and covariance matrices. The homogeneity assumption of variances were also evaluated using the Levene's Test and confirmed (P >0.05). Reviewing the homogeneity of regression slope also supported the insignificant interaction of conditions and pre-test. Therefore, the assumptions of covariance analysis are established and it is possible to use the multivariate covariance analysis for analyzing the test scores. The summary is presented in Table 3.

Data obtained from the research were analyzed using multivariate covariance analysis. The results of Wilk's Lambda Test (P >0.001, F = 8.14) showed that there was a significant difference between two groups in at least one of the dependent variables. This means that with considering the pre-test, there is a difference between the post-test of the groups, which indicates the effectiveness of the treatment program in at least one of the dependent variables. The results of Table 3 also show that there is a significant difference between the experimental and control groups in the mean scores of expression of positive emotion (P <0.001, F = 17.304), expression of intimacy (P <0.001, P = 18. 183), expression of negative emotion (P <0.001, F = 22.852) and total emotional expressiveness

Table 3: Summary results of the intergroup differences between the emotional expression and self-care variables of the two experimental and control groups

Variable	Components	Sum of squares	Degrees of Freedom	Mean Squares	F	Significance Level	Eta Squared
Emotional Expressiveness	Expression of positive emotion	668.595	1, 27	668.595	17.304	.001	.391
	Expression of intimacy	344.643	1, 27	344.643	18.183	.001	.402
	Expression of negative emotion	207.252	1, 27	207.252	22.852	.001	.458
	Total score of Emotional Expressiveness	3459.558	1, 27	3459.558	33.365	.001	.553
Self – Care behaviors	Self – Care behaviors	1897.950	1, 27	1897.950	10.551	.003	.281

score (P <0.001, F = 33.365) and self-care behaviors variable (P <0.05, F = 10.551) and the mean of pre-test and post-test stages of the two groups was statistically significant. Group psychotherapy based on acceptance and commitment increased the scores of expression of positive emotion, expression of negative emotion, expression of intimacy, total score of emotional expressiveness as well as scores of self-care behaviors in the experimental group in the post-test phase. So, it can be concluded that group psychotherapy based on acceptance and commitment has been influencing emotional expression and self-care behaviors among patients with type 2 diabetes. Also, Eta Squared shows that between 0.28 and 0.55 of these changes are due to the application of an independent variable or group psychotherapy based on acceptance and commitment. The overall result suggests that group psychotherapy based on acceptance and commitment was effective on the studied variables.

Discussion

The aim of this study was to evaluate the effectiveness of group psychotherapy based on acceptance and commitment on emotional expressiveness and self-care behaviors in patients with type 2 diabetes. The results of the data analysis indicated that group psychotherapy based on acceptance and commitment improved emotional expression and self-care behaviors in patients with type 2 diabetes in the post test of experimental group.

These findings are consistent with the results of studies such as Hasker et al. (25), Hosseini et al. (27), Shayeghian et al. (26), Makvand et al. (38) and Lappalainen et al. (29). By reviewing the research background, it can be concluded that there are good research support for the use of any type of psychotherapy to reduce the psychological disorders of people with chronic diseases. In a research aimed at evaluating the efficacy of a group therapy based on acceptance and commitment to improve hemoglobin glycosylated in type 2 diabetic patients, conducted by Shayeghian et al. (26), it was shown that group psychotherapy based on acceptance and commitment resulted in decreased hemoglobin Glycosylated patients with type 2 diabetes, which remained stable

for up to 3 months after the intervention. Makvand et al. (38) also conducted a study to assess the impact of group therapy based on acceptance and commitment on the self-management of patients with type 2 diabetes, and found that acceptance and commitment therapy was effective in improving type 2 diabetes self-management. Darvish Baseri et al. (28) also achieved the following results through a research on the effectiveness of group therapy based on acceptance and commitment on cognitive emotion and emotional adjustment. The results showed that group therapy based on acceptance and commitment method significantly increased the cognitive behavior of excitement and reduced the emotional exacerbations of chronic patients.

In explaining the findings of this study in the emotional expressiveness dimension, the results of the studies have shown that if a patient with type 2 diabetes is persuaded that diabetes will lead to his early death, he may lose his emotional balance and starts to avoid thoughts and to escape from this fear. It is likely to neglect self-care activities because believing in early death causes leads him to frustration and his reluctance to continue the treatment process (39). While in group therapy based on acceptance and commitment, the patient is trained in the first step that any action based on the avoidance or control of unwanted mental experiences has an inert or reverse effect, and ultimately leads to intensification and strengthening of these experiences. Therefore, these experiences must be accepted by the patient without any internal or external reaction in order to remove them. In the second step, the treatment focuses on increasing the mental awareness of the person at the moment. In the third stage, the goal is to achieve cognitive separation in which one can separate himself from his mental experiences, so that he can act away from the effects of these experiences. The goal of the next step is to reduce the focus on self-image and the personal story that a person has made for himself. In the fifth step of this treatment, it helps the individual to identify, clearly define and prioritize his or her personal values and transform them into specific behavioral goals. In the final stage, it is attempted to motivate individuals to act in a responsible manner; that is, to focus on the goals and specified values, along with accepting mental experiences (40). In this regard, Lustman and Guard (41) have shown that the avoidance of disease is very high in people with diabetes, and this principle is in line with the basic principles of treatment for acceptance and commitment to diabetes, which indicates that the main problem of not acting self-care is the empirical avoidance of emotions and thoughts. In other words, group psychotherapy based on acceptance and commitment in patients with type 2 diabetes is aimed at reducing and controlling diabetes-related disorders that causes emotional disturbances as well as improving coping skills and quality of life. It can be said that this therapeutic approach creates realistic changes to diabetes (40). As a result, the patient's exposure to the thoughts and emotions resulting from it will be reduced and the subjects will have more acceptance to the disease.

In the second section (the self-care dimension), it can be said that self-care prerequisite is to identify patients' potential abilities and encourage them to make optimal use of these abilities and to perform self-care behaviors (42). One of the most important

processes involved in group psychotherapy based on acceptance and commitment is to see oneself as a context and connecting to the present time. These processes will lead to self-knowledge of individual current needs which in the long term, lead to the creation of self-care behaviors. In this regard, Hosseini et al. (27) showed that group psychotherapy based on acceptance and commitment after 10 weekly treatment sessions has led to an increase in the behaviors associated with the health of patients with type 2 diabetes. The indicated reasons can be the attention of the patient's to himself and his physical and emotional states, which leads to increased attention to physical cares.

Conclusion

In general, the results of this study showed that using group psychotherapy based on acceptance and commitment would lead to an increase in emotional expressiveness of patients and consequently a greater increase in self-care behaviors in patients with type 2 diabetes. One of the limitations of this research was the research tools limitation. It means that many emotional states and self-care behaviors cannot be measured in most of the questionnaires. Therefore, it is suggested that future studies with caution in generalizing the findings, should use questionnaires with a range of components, more questions and qualitative methods for data collection. Other limitation of research includes the limitations in the sample and the statistical population, which means that this study was conducted on patients with type 2 diabetes in Tehran. It is suggested that future studies investigate and compare the results of this study with other diabetes groups in other cities. Finally, it can be said that the present study as one of the psychological studies on chronic disease like type 2 diabetes, once again showed that by using psychotherapies such as group psychotherapy based on acceptance and commitment cause changes in physical function and provides the basis for improvement of patients.

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Conflict of interest

There are no conflicts of interest for the authors of this article.

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