Positive Psychotherapy Effect on Life Expectancy and General Health of Type 2 Diabetic Patients: A Randomized Controlled Trial

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Abstract

Objective: Diabetes is a chronic disease that influences mental and physical health. Regarding the importance of diabetic patients' psychological status, this research studied the effect of group positive psychotherapy on life expectancy and general health of type 2 diabetic patients.

Materials and Methods: This clinical-trial study was done on 30 type 2 diabetic patients in Kermanshah diabetes research center. The experimental and control groups were randomly selected. Data were gathered before and 10 weeks after intervention. Demographic, life expectancy and general health (GHQ) questionnaires were used for gathering data. SPSS-16 and Kolmogorov-Smirnov (K-S), Chi-square and analysis of covariance (ANCOVA) were used for analyzing data.

Results: Results showed that group positive psychotherapy caused significant enhancement on life expectancy in intervention group than control group (*P*-value: 0.001). Although positive psychotherapy caused significant reduction on anxiety disorder and somatic symptoms in mental health, there was no significant difference of general health between two groups (*P*-value: 0.347).

Conclusion: Positive psychotherapy was effective on increasing diabetic patients' life expectancy. So this efficient psychotherapy can be used for increasing type 2 diabetic patients' life quality.

Keywords: Positive psychotherapy, Life expectancy, General health, Diabetes

Introduction

Today diabetes is one of the worldwide important health problems (1,2). The chronic disease causes more fatality, life quality reduction and therapeutic costs (3). Past studies showed that diabetes has negative effect on physical health as well as psychological status (4). For example stress is one of the important mental conditions which are risk factor of type 2 diabetes. Stress effects metabolic system and imbalance the blood sugar control. Poor glycemic control influences the psychological health too (5). Beside stress, depression (6) and anxiety (7) are respectively the most common mental disorders among diabetic patients. Social dysfunction, life expectancy reduction,

suicide, anorexia, insomnia, exhaustion, concentration difficulty and aggression are frequent in diabetic patients (8).

Psychotherapy focuses on individual's psychological features and can reduce the therapeutic costs as well as improving mental health of patients. The effectiveness of psychotherapy was useful based on past studies in diabetes and other chronic diseases (9-11).

One of the new approaches which cause an important changes and evolutions in health is positive psychotherapy. It was discussed for the first time by Martin Seligman in 2000. As far as Seligman concerns, positive psychotherapy is a new way in psychotherapy which figures on abilities, capacities and positive emotions (12). Indeed this positive approach emphasizes on therapists of psychological therapy disorders not only try to omit the disease symptoms but also try to promote life quality of patients. Thus some of psychologists used interventions for their positive therapy based on ideas, sensation, behavior and positive cognitions (13). The interventions were positive psychotherapy (14), hope therapy, quality of life therapy and positive activity interventions (15). (It should be taken to notice that positive therapy has two meanings. The first general one is predicated to all positive psychotherapies. The second one is the therapy which was discussed by Seligman and his coworkers in 2006 that the later one is used in this research.)

Positive psychotherapy and its interventions focus on increasing well-being, happiness and life quality. Also increasing positive emotions cause decreasing stress as well as its positive effect on patients' mental health (14). The effectiveness of positive psychotherapy was studied on different diseases such as infertility, cancer, addiction with different mental disorders (depression and stress) (15).

Various interventions and care are needed in order to manage and control type 2 diabetic patients as well as preserving long lasting complications of this disease (16). We studied the effect of group positive psychotherapy on life expectancy and mental health of type 2 diabetic patients.

Materials and Methods

This study was a randomized controlled trial conducted from July 25, 2014 to December 22, 2016. This research was done in diabetes research and therapy center of Kermanshah. About 120 patients wanted to participate so they were being interviewed. The entry criteria for selecting participants were respectively gaining mild to average score on mental health (23-26 on GHQ), being 31-55 years old (women) and having at least 6 months history of type 2 diabetes. The exclusion criteria were gaining intense score on GHQ and using other psychiatric or psychotherapy treatments simultaneously. Regarding entry and exiting criteria among 120 interviewees 30 included in this study. The participants were randomly divided in two groups. While participants of both groups continued their medication, the intervention group received 10 sessions (1.5 hours per week) positive psychotherapy. At the end, the invalid data of 3 members of intervention group and 2 of control group were omitted. Each patient completed the research questionnaires before and after the last session of treatment.

The questionnaires were

Demographic checklist

This checklist was used for gathering demographic data of type 2 diabetic patients such as sex, age, education level, job, duration of disease.

Life Expectancy Questionnaire

This questionnaire was made in order to measure individuals' hope toward life and future in 2008. It has 33 items that each examinee answer the questions based on Likert scale (Absolutely, Almost, Never). The maximum score of this test is 99 that the more score shows the more life expectancy. Results reported 0.80 as its reliability coefficient based on test-retest (17).

General Health Questionnaire (GHQ-28)

It was made by Goldberg and Hiller in 1979. It has 28 items and four scales (somatic symptoms, anxiety, sleep disorder, social dysfunction and depression symptoms). This test nominates a total score as an indicator of mental health as well as disease diagnosis. The best cut-off point has respectively been reported as 0.86.5 and 0.82 (17).

Indeed the group positive psychotherapy composed of 10 sessions of 1.5 hours per week that was performed on patients. The participants learned the positive attitude skills toward themselves and others by the help of a therapist and one instructed cooperator. During the intervention, examinees completed the written specified practices in a work form of each session. Table 1 shows a brief review of each session's content.

The primary outcomes of our analysis were the mean ± standard deviation (SD) of mental health and life expectancy in patients with diabetes. Also the final outcome from the analysis was the effect of positive psychotherapy on mental health and life expectancy in the patients. SPSS-16 software was used for analyzing data. Kolmogorov-Smirnov (K-S) test was used for evaluating the normality of numerical data and the results showed that all variables had normal distribution. Chi-square was used for measuring the similarity of qualitative variables and analysis of covariance (ANCOVA) for measuring the research hypothesizes.

Results

Among 30 participants, 3 of intervention group and 2 of control group were missed. The mean age of participant was 46.8 ± 7.96. The mean age of experimental group was 46.67 ± 6.22 and control was 46.3 ± 9.56. Among 25 participants 52% were male and 48% were female. Chi-square results of quantitative variables showed that there were no significant sex, age and education level differences between two groups (Table 2).

The ANCOVA in experimental group posttest phase showed that the mean score of general health and its subscales became less than pretest phase. While the mean score of general health and its subscales were almost the same in post and pretest phase in control group. Also life expectancy in experimental group post-test phase is more than control group's (Table 3).

Table 3 showed the significant difference of dependant variables between both groups (*P*-value: 0.001). Thus it can be concluded that there was a significant difference at least in one of the dependant variables (mental health and life expectancy) among two groups of type 2 diabetic patients. Analysis of covariance on dependant variables was done for studying the difference part and the results are presented.

Table1. Method of positive psychotherapy

First week	Establishing pre-group in order to take written testimonial of patients and become familiar with each other
The second and third week	Teaching ways of using abilities and VIA performance Task: Evaluating 5 dominant abilities and find some ways to use them in their routine life.
Third week	Teaching three good things Task: write down three good things that happen every day and why they happened.
The fourth and fifth week	Teaching life summary Task: Imagine that you were died after a very satisfying life. What are you going to write in your obituary? Write whatever you like to be remembered about you in 1 or 2 pages.
The sixth and seventh week	Teaching gratitude visit Task: find someone whom you are very gratitude but you never thank him/her well. Write a letter that describe your gratitude and read it for him/her on the telephone or face to face.
Eighth week	Teaching active response Task: one response: answer someone whom you know very actively at least once a day.
The ninth and tenth week	Teaching relish feeling Task: Each day devote some time enjoying those activities you like such as eat meat, take a shower, and take a walk. At that time you do them, write down what did you do. How did you do it and what was your feeling.

Table 2. Demographic comparison in intervention and control group by means of Chi-square (N=25)

Variable	Classification	Experimental group		Control group		Total		Sig.
		N	%	N	%	N	%	
Gender	Males	7	58.3	6	42.6	13	52	0.543
	Females	5	41.7	7	53.8	12	48	
Age	32-39	3	25	5	38.5	8	32	0.341
	40-47	5	41.7	2	15.4	7	28	
	48-55	4	33.3	6	46.2	10	40	
Education level	Under Diploma	5	41.7	6	46.2	11	44	0.975
	Diploma	4	33.3	4	30.8	8	32	
	Bachelor degree	3	25	3	23	6	24	

Table 3. The results of MANCOVA on basic variables in intervention and control group

Variables	Experimental group a		Control group a		Mean squares	F	Sig.
	Pretest b	Posttest b	Pretest b	Posttest b			
Life Expectancy	65.4 ± 6.7	83.2 ± 8.3	74.7 ± 8.72	71.8 ± 7.8	1612.01	63.94	0.001
Somatic symptoms	13.75 ± 3.6	8.5 ± 3.58	10.46 ± 5.9	11.7 ± 4.3	182.16	70.71	0.001
Anxiety	13.08 ± 4.25	7 ± 4.7	10 ± 5.7	9.7 ± 5.9	155.16	22.99	0.001
Social Dysfunction	9 ± 2.8	7.08 ± 2.15	6.7 ± 3.2	6.46 ± 2.72	4.81	2.42	0.134
Depression symptoms	8.6 ± 6.21	4.83 ± 5.07	5.53 ± 7.1	5.53 ± 5.48	18.76	0.800	0.381
General Health	44.4 ± 13.81	32.16 ± 13.53	32.6 ± 17.8	33.53 ± 13.87	153.136	0.922	0.347

a: number of participants: intervention group (n=12), control group (n=13); b: mean ± SD

Also table 3 showed that the somatic symptoms (F= 7.71, *P*-value: 0.001), anxiety and sleep disorder (F= 22.99, *P*-value: 0.001) and life expectancy (F= 63.94, *P*-value: 0.001) variables were significant. Thus the research hypothesizes about the effect of group positive psychotherapy on reducing somatic symptoms, anxiety and sleep disorder and increasing life expectancy on type 2 diabetic patients were confirmed. But the effects of group positive psychotherapy on social dysfunction, depression symptom and general health were not confirmed.

Discussion

Results showed that group positive psychotherapy caused significant improvement in life expectancy of type 2 diabetic patients. These results were in line with other studies. Chan et al. (18) in their experimental study on 43 type 2 diabetic patients showed that positive online skills had beneficial results on improving the patient's quality of life. Moskowitz et al. (19) showed that positive affection can reduce the risk of death in type 2 diabetic patients.

The group positive psychotherapy leads to significant reduction in anxiety and somatization among diabetics. However there was no significant difference between depression and social dysfunction items in both groups. This indicates that though the mental disorders in intervention group had decreased in compare with control group, the results were not statistically significant. Hoffman et al. (21) in their study on diabetic patients showed that positive psychotherapy intervention caused positive psychological improvment in most of patients but it remains unclear that whether positive psychological exercises are effective in strengthen the positive psychological statues and also modifying health behaviors in diabetic patients or not.

Chan et al. (18) claimed that positive online skills lead to depression reduction in diabetic patients. These data indicate that positive psychotherapy interventions might cause positive reinforcement of mental health in different physical illnesses. Indeed other data from randomized clinical trials in patients indicate that positive psychotherapy interventions on cardiovascular patients lead to significant improvements in health behaviors such as increasing physical activity and also can cause medication adherence in patients with high blood pressure (22-24).

It can be concluded that positive psychotherapy and also establishing a group of diabetic patients in 10 sessions had positive effect on mental health of patients. Positive emotion factors such as abilities, remembering sweet memories and also effective group factors such as relationships, intimacy and trust caused some changes in mental health and attitudes of patients. Since these changes had happen in a short time and during 10 weeks, its productivity and higher chance effect were being decreased. It seems that if the number of sessions increases to 10, general health enhancement could be predicted by this therapy (25).

Limitations

There were several limitations in the present study that should be noted and taken into consideration when interpreting the results, as well as providing direction for future researches such as:

Lack of examinees' follow up for long time.

The treatment carried out during the short time (10 weeks)

Conclusions

Today positive psychotherapy is used for reducing plenty of mental disorders such as anxiety and depression. Beside it's used for increasing happiness and psychological well-being. For the first time this research studied the effect of positive psychotherapy intervention on type 2 diabetic patients mental health by regarding the advantages and disadvantages of past studies. Generally the results of this research showed that this therapeutic way had an effective role on psychological status and life expectancy of type 2 diabetic patients. The researchers suggest others to regard above matters in future researches and study the effectiveness of positive psychotherapy on physical condition and blood sugar of type 2 diabetic patients.

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Clinical Trial Registration

The trial was registered at the Iranian Registry of Clinical Trial (IRST) with the identification number IRCT2014022816771N1.

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Conflict of Interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

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