



Effectiveness of positive psychotherapy on adherence to treatment and glycosylated hemoglobin in female patients with type 2 diabetes

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Abstract

Aim: The purpose of this study was to determine the effectiveness of positive psychotherapy on adherence to treatment and glycosylated hemoglobin in female patients with type 2 diabetes. **Method:** This study was a quasi-experimental type of pre-test, post-test and follow-up. 30 women with type 2 diabetes who referred to Iran Diabetes Association located in Tehran province from January to May 2019 were selected by purposive sampling method. Then they were randomly assigned to the experimental group (under positive psychotherapy) (n=15) and the control group (n=15). Data collection tools were the adherence to treatment scale (Murisky, Eng, & Wood, 2008) and glycosylated hemoglobin measurement in three baseline stages, after the intervention and three-month follow-up. The structure of positive psychotherapy sessions was implemented based on Seligman's positive psychotherapy group intervention (2006) in eight sessions for the experimental group. Data analysis was done using multivariate repeated measure analysis of variance. **Results:** The findings showed that in the group under positive psychotherapy, the average score of adherence to treatment is significantly higher than the control group ($F=511.16, P<0.001$). In addition, women with diabetes in the experimental group decreased significantly in the average glycosylated hemoglobin score compared to the control group ($F=389.50, P<0.001$). **Conclusion:** The results of this study showed that positive psychotherapy can be effective in improving treatment compliance and reducing glycosylated hemoglobin in women with type 2 diabetes.

Keywords: adherence to treatment, type 2 diabetes, positive psychotherapy, glycosylated hemoglobin.

Introduction

One of the interventions that can be used to reduce the serious complications of diabetes is positive psychotherapy (Binning et al., 2019). In 1998, the positive psychology approach was proposed by Seligman. This area of focus of clinical psychology expanded beyond the unpleasant clinical symptoms of a disorder and the direct relief of symptoms and considered the goal of psychotherapy to be more than improving the negative symptoms of a disorder, i.e., increasing the well-being and happiness of people (Keokinkamp et al., 2018). According to the positivist point of view, emotions, and abilities are the best factors in preventing psychological injuries. Researchers in the field of prevention believe that prevention emphasizes building capabilities and not correcting weaknesses; Therefore, human capabilities are a protection against mental illnesses (Salimi et al., 2016). Courage, optimism, interpersonal communication skills, working ethics, hope, and honesty are examples of these capabilities (Dogreo et al., 2019).

Positive emotions not only help people cope well with economic changes and stress, but opening people's hearts and minds makes them more responsible, productive and creative. The effect of positive thinking can be long-term, and adopting a positive attitude may greatly contribute to human health. Various studies on the preventive effect of positive interventions show that identifying and promoting positive emotions and increasing psychological well-being as a protective barrier prevents people from suffering from depression, anxiety, chronic injuries and life tensions (Calderon, 2018). Positive psychotherapy can change vulnerability to resilience by reducing negative symptoms and effectively and directly by creating positive emotions, character capabilities and meaning (Silano et al., 2019). Positive psychotherapy can create positive resources and reciprocal effects on negative symptoms. Moreover, a barrier to the reoccurrence of positivity is a form of thinking that habitually seeks to obtain the best result from the worst conditions (Kahermani et al., 2017). Considering the above, this research was conducted to determine the effectiveness of positive psychotherapy on treatment adherence and glycosylated hemoglobin in female patients with type 2 diabetes. Therefore, the question of the present research is as follows:

- 1- Was positive psychotherapy effective on treatment compliance and glycosylated hemoglobin in female patients with type 2 diabetes in the post-examination phase?
- 2- Was positive psychotherapy effective on adherence to treatment and glycosylated hemoglobin in female patients with type 2 diabetes in the follow-up phase?

Method

This study was a quasi-experimental type of pre-test, post-test and follow-up. 30 women with type 2 diabetes who referred to Iran Diabetes Association located in Tehran province from January to May 2019 were selected by purposive sampling method. Then they were randomly assigned to the experimental group (under positive psychotherapy) (n=15) and the control group (n=15). Data collection tools were the adherence to treatment scale (Murisky, Eng, & Wood, 2008) and glycosylated hemoglobin measurement in three baseline stages, after the intervention and three-month follow-up. The structure of positive psychotherapy sessions was implemented based on Seligman's positive psychotherapy group intervention (2006) in eight sessions for the experimental group. Data analysis was done using multivariate repeated measure analysis of variance.

Results

Before examining the hypotheses of the research, the data of the research was separated into groups (evidence-experiment) and test (pre-test-post-test-follow-up) in terms of the normality of the data using the Kolmogorov Smirno and Shapiro-Wilk normal distribution tests. The results of Shapier and Wilk's normal distribution test in the experimental and control groups showed that the assumption of normality of the data in compliance with the treatment in the pre-test and post-test stages and hemoglobin in the pre-test and follow-up stages has a normal distribution ($P < 0.01$).

There is no significant difference between the three groups in the mean of treatment adherence and hemoglobin in the pre-test stage, but the difference between the two groups in the post-test and follow-up stages was significant, which can indicate the effectiveness of positive psychotherapy on the treatment adherence variable. In order to investigate the effectiveness of positive psychotherapy on the dimensions of adherence to treatment and glycosylated hemoglobin, multivariate repeated measurement variance analysis was used. Therefore, first the assumptions of this test were examined for each variable. The results of Bartlett's sphericity test ($P < 0.001$, $X^2 = 479.441$) indicated compliance with the default of this test (correlation between dependent variables). Then, the results of the Mbox test were checked to check the homogeneity assumption of the covariance matrix, which showed that this assumption is not valid for the investigated components ($P < 0.001$, $\text{BoxM} = 7627.42, 1.413, 231F, 603.75$). However, due to the high sample size of the two groups, it can be said that this test is resistant to the violation of this assumption. Then, the assumption of sphericity was implemented using Mauchly's test for all the investigated variables and the results of this test showed that this assumption is valid for the variables of hemoglobin and adherence to treatment ($P < 0.05$). Then, the assumption of homogeneity of error variance was checked using Levene's test, and the results of this analysis showed that this assumption is valid for the components of adherence to treatment, self-care, quality of life, and hemoglobin ($P < 0.05$).

Then, the results of the intergroup effect test to check the effectiveness on the studied dimensions showed that in the control and experimental groups, in the variable of adherence to treatment ($F = 511.163, P < 0.001$) and glycosylated hemoglobin ($P < 0.001, F = 389.50$) There is a significant difference between the two experimental and control groups, and the comparison of the averages indicated that the average adherence to the treatment was higher and the hemoglobin decreased in the experimental group compared to the control group.

Then, in order to compare the averages of the two groups in all three stages of evaluation, the paired comparison test was used to check the effectiveness of the intervention and the stability of the treatment in the follow-up stage. The results showed that the positive psychotherapy intervention was more effective on the investigated dimensions in the experimental group than in the control group, and the comparison of the averages of the two groups in the post-test and follow-up stages indicated the stability of the intervention effect in the experimental group.

Conclusion

This study was designed and implemented to investigate the effect of positive psychotherapy on treatment adherence and glycosylated hemoglobin in female patients with type 2 diabetes. In this study, it was observed that the results related to the individual characteristics of the research units, which include patients, were not statistically significant in the two control and intervention groups in terms of individual characteristics, and in other words, the two groups were homogeneous in terms of these characteristics. Therefore, comparing the two groups was done better according to the intervention.

The positive effect of positive psychotherapy training on the compliance of type 2 diabetic patients in the current study is probably due to the increase in the motivation of these patients to comply with patients seeking to receive training based on the principles of positive psychotherapy. Since one of the most important factors of treatment non-compliance is the lack of information and knowledge, perhaps another reason can be attributed to increasing the knowledge and information of patients regarding diabetes. In this study, patients' knowledge, motivation and information increased after an educational intervention (Brug et al., 2017).

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