Brief Report

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Iranian Journal of Diabetes and Obesity (IJDO)

Effectiveness of Acceptance and Commitment Based Group Therapy with the Islamic Approach on Diabetes Control and Increasing Self-Care Behaviors in Patients with Type II Diabetes in Yazd province.

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Abstract

Objective: The purpose of this study was to investigate the effectiveness of acceptance and commitment based group therapy (ACT) with the Islamic approach to diabetes control, increasing self-care behaviors in patients with type II diabetes mellitus (T2DM) referent to the Yazd Diabetes Research Center.
Materials and Methods*:* The study method was semi experimental with control group. For this purpose, 40 diabetic patients were randomly divided into two experimental and control groups. The study was in Yazd diabetes research center. The purposeful sampling method was done. So, all of the patients did the A1C hemoglobin test, and completed the self-care questionnaire for diabetic patients (SDSCA). Then, the experimental group received ACT with an Islamic approach during 16 weeks. The population of both groups performed the A1C Hemoglobin test and completed the self-care questionnaire again after performing the instructional plan. In this research, the covariance analysis test was done to analyze the results.
Results*:* The findings of the research showed that ACT group therapy with an Islamic approach effects on HbA1c decreasing (*P*: 0.001) and self-care behaviors improvement (*P*: 0.001) in T2DM patients.
Conclusion*:* This study showed that the treatment group based on commitment resulted in a significant reduction of HbA1 and a significant increase in self-care activities in patients with T2DM.
Keywords: Type II diabetes, Acceptance and commitment based therapy, Islamic approach, Self-care, Diabetes control

QR Code:

Citation: Hakimian M M, Sedrpoushan N, Abolhassani Shahreza F. Effectiveness of Acceptance and Commitment Based Group Therapy with the Islamic Approach on Diabetes Control and Increasing Self-Care Behaviors in Patients with Type II Diabetes in Yazd province.. IJDO 2023; 15 (4) :261-265

URL: http://ijdo.ssu.ac.ir/article-1-837-en.html

10.18502/ijdo.v15i4.14559

Article info:
Received: 08 March 2023
Accepted: 10 November 2023
Published in December 2023
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[DOI: 10.18502/ijdo.v15i4.14559]

Introduction

Diabetes is one of the most common non-contagious chronic diseases and the biggest health problem in all countries, so that the World Health Organization has called it as "a silent epidemic" (1-6). Diabetes self-care activities requires paying attention to diet, physical activity, blood glucose monitoring, and compliance with prescribed medications as the first essential step in the patent empowerment (7-11).

Hence, several psychological treatments such as self-management instruction, stress management and relaxation, behavioral therapy, cognitive-behavioral therapy, and acceptance and commitment based therapy (ACT) have been used in addition to medical treatment and in order to treat diabetes over the successive years (12-15). The present study is done with the purpose of investigating the effectiveness of ACT with an Islamic approach on increasing self-care activities and control of patients withT2DM.

Material and methods

This study is a semi-experimental design. The study population was contained all T2DM patients referred to the Yazd diabetes research center. Forty individuals were purposefully selected among the volunteers. The included study samples were randomly divided in 2 groups and 8 intervention sessions were conducted on the therapy group. The hbA1C blood test was done once before the first session and once after the last session in order to check the diabetes control, and the self-care questionnaire is given to them once before the first session and once after the last session in order to assess the change of patients' self-care capacity. The hbA1C test and the questionnaire are executed again three months after the end of the intervention for following the therapeutic effects in order to assess the permanence of the therapeutic effects over time. The descriptive statistics index as well as the statistical method of covariance analysis is used in order to analyzing the data.

Measurement instruments

HbA1C is an indicator of informing about how diabetes is controlled. Blood glucose binds to hemoglobin during a process called glycosylation. The HbA1c test shows the glycosylation amount or the mean blood sugar level over the last 8 to 12 weeks. The normal range of A1C hemoglobin (can be seen in healthy individuals) is 4 to 5.9%. People with diabetes usually have high levels of HbA1c.

Self-care empowerment questionnaire for diabetic patients (SDSCA)

SDSCA includes 15 titles, and each title has the gradation of 0 to 7 based on the Likert scale. In this instrument, if the patient carries out the self-care behavior on all days of the week, the full score of 7 is considered, and if the demanded behavior is not carried out, the score is considered zero. The highest possible score in this instrument is 105, which indicates the highest level of self-care. The scientific reliability of the instrument was also confirmed by a test-retest method with a correlation coefficient of 0.88 and internal consistency of the questionnaire with a Cronbach's alpha test of 0.71.

The descriptive statistics methods were used to describe the research data and after that, the necessary statistical assumptions were examined. Finally, inferential methods have been used to analyze the research hypotheses.

Ethical considerations

This study was approved by Islamic Azad University of Yazd ethics committee. This study is extracted from PHD thesis.

Results

Description of the data

The mean and standard deviation of the pre-test and post-test HbA1c scores in both experimental and control groups are presented

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[DOI: 10.18502/ijdo.v15i4.14559]

in Table 1. The mean and standard deviation of the pre-test and post-test self-care scores in both experimental and control groups are presented in Table 2.

Inferential data analysis

In this research, covariance analysis (ANCOVA) was used to analyze the results inferentially. Therefore, it is necessary to examine the required assumptions for the application of parametric tests before examining the research hypotheses.

As it can be seen from the table results, the assumption of variances equality is confirmed for the scores of all variables in the control and experimental groups.

Examination of research hypotheses

In this section, the examination of research hypotheses was used by statistical method of covariance analysis.

The first hypothesis

The acceptance and commitment based group therapy (ACT) with an Islamic approach has an influence on controlling diabetes in type II diabetic patients in Yazd province.

The covariance analysis results of post-test scores of HbA1C scores in both experimental and control groups are presented in Table 3. Table 3 shows that there is a significant difference between the adjusted mean of the Hba1c scores of the participants in terms of group membership (two experimental and control groups ($P< 0.001$) after removing the effect of the pre-test variable and considering the calculated coefficient F. So, this hypothesis is confirmed. The effectiveness amount of the intervention was about 43%. Therefore, the acceptance and commitment based group therapy (ACT) with Islamic approach has a remarkable effect on controlling diabetes in individuals with type II diabetes. The statistical power of 0.99 and the significant demanded level ($P< 0.001$) show the relatively high accuracy of the test and the adequacy of the sample size.

The second hypothesis

The acceptance and commitment based group therapy (ACT) with an Islamic approach has an influence on increasing self-care behaviors in individuals with type II diabetes in Yazd province.

The results obtained from covariance analysis of post-test scores of self-care scores in the experimental and control groups are presented in Table 4. Table 6 shows that there is a significant difference between the adjusted mean of self-care scores of the participants in terms of group membership (two experimental and control groups ($P< 0.001$) after removing the effect of the pre-test variable and considering the calculated coefficient F.

Table 1. Mean and standard deviation of pre-test and post-test scores of HbA1c in both experimental and control groups

Group	Pre-test		Post-test		*P*-value
	Mean	standard deviation	Mean	standard deviation	
Control group	7.98	1.61	7.89	1.44	0.635
Experimental group	8.15	1.46	7.41	1.38	0.001

Table 2. shows the mean and standard deviation of pre-test and post-test self-care scores in both experimental and control groups

Group	Pre-test		Post-test		*P*-value
	Mean	standard deviation	Mean	standard deviation	
Control group	23.80	9.72	23.30	9.30	0.621
Experimental group	27.35	10.30	33.90	11.47	0.001

Table 3. the results obtained from covariance analysis of HbA1C post-test scores in two groups

Variable index	Sum of squares	Degree of freedom	Average squares	Coefficient F	*P*-value	Effectiveness	Statistical power
Pre-test	75.22	1	75.22	346.35	0.001	0.903	1
Group membership	6.27	1	6.27	28.87	0.001	0.438	0.999

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Table 4. Results obtained from covariance analysis of post-test self-care scores in two groups

Variable index	Sum of squares	Degree of freedom	Average squares	Coefficient F	*P*-value	Effectiveness	Statistical power
Pre-test	3790.23	1	3790.23	360.66	0.001	0.907	1
Group membership	484.54	1	484.54	46.47	0.001	0.557	1

So, this hypothesis is confirmed. The effectiveness amount of the intervention was about 55%. Therefore, the acceptance and commitment based group therapy (ACT) with Islamic approach has a remarkable effect on increasing self-care behaviors of individuals with type II diabetes. The statistical power of 1 and the significant demanded level ($P< 0.001$) show the relatively high accuracy of the test and the adequacy of the sample size.

Conclusion

The purpose of this study is to investigate group therapy based on commitment with Islamic approach on diabetes control and increase self-care capacity in type 2 diabetes patients.

The findings of this study showed that the treatment group based on commitment resulted in a significant reduction of HbA1 and a significant increase in self-care activities in T2DM patients.

Repetition of the present study in other urban samples and comparison of its results with the sample of Yazd is also suggested in order to validate the findings. Finally, it can be argued that despite the research constraints, the findings of this study are a step forward in the psychological treatment of people with diabetes and it is hoped that the self-care level of diabetic patients can be improved through the combination of these treatments with medical treatments, and thus prevent the dangerous complications of diabetes.

Acknowledgments

This study was conducted as a part of a master thesis. We thank Dr. Nasim Namiranian and Fateme Sadat Haghighi from Yazd Diabetes Research Center to help us in the conducting of this study.

Funding

The study costs have been provided by the authors and there was no external funding.

Conflict of Interest

No potential conflict of interest was reported by the authors.

Authors' contributions

All authors have accepted responsibility for the entire content of this manuscript and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved and approved the version to be published.

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