

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

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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 patient 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 with T2DM.

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

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 |

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.

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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.

References

1. Daryasari GA, Karkezloo NV, Mohammadnejad E, Vosooghi MN, Kagi MA. Study of the self-care agency in patients with heart failure. *Iranian Journal of Critical Care Nursing*. 2012;4(4):203-8.
2. American Diabetes Association. Standards of Medical Care in Diabetes—2014. *Diabetes Care* 2014; 37 (Suppl. 1): S14–S80. Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care* 2014; 37 (Suppl. 1): S81–S90. *Diabetes care*. 2014 Mar 1;37(3):887-.
3. Brito-Sanfiel M, Diago-Cabezudo J, Calderon A. Economic impact of hypoglycemia on healthcare in Spain. *Expert review of pharmacoeconomics & outcomes research*. 2010;10(6):649-60.
4. Cimo A, Stergiopoulos E, Cheng C, Bonato S, Dewa CS. Effective lifestyle interventions to improve type II diabetes self-management for those with schizophrenia or schizoaffective disorder: a systematic review. *BMC psychiatry*. 2012;12(1):1-9.
5. Yu PC, Bosnyak Z, Ceriello A. The importance of glycated haemoglobin (HbA1c) and postprandial glucose (PPG) control on cardiovascular outcomes

- in patients with type 2 diabetes. *Diabetes research and clinical practice*. 2010;89(1):1-9.
6. Martin C, Daly A, Shane McWhorter L, Shwide-Slavin C, Kushion W; American Association of Diabetes Educators. The scope of practice, standards of practice, and standards of professional performance for diabetes educators. 2005;31(4):487-8
 7. Gregg JA, Callaghan GM, Hayes SC, Glenn-Lawson JL. Improving diabetes self-management through acceptance, mindfulness, and values: a randomized controlled trial. *Journal of consulting and clinical psychology*. 2007;75(2):336.
 8. Steinsbekk A, Rygg L, Lisulo M, Rise MB, Fretheim A. Group based diabetes self-management education compared to routine treatment for people with type 2 diabetes mellitus. A systematic review with meta-analysis. *BMC health services research*. 2012;12:1-9.
 9. Mensing C, Boucher J, Cypress M, Weinger K, Mulcahy K, Barta P, Hosey G, Kopher W, Lasichak A, Lamb B, Mangan M. National standards for diabetes self-management education. *Diabetes care*. 2005 Jan 1;28(1):s72-9.
 10. Rawal LB, Tapp RJ, Williams ED, Chan C, Yasin S, Oldenburg B. Prevention of type 2 diabetes and its complications in developing countries: a review. *International journal of behavioral medicine*. 2012;19:121-33.
 11. Polonsky WH. Emotional and quality-of-life aspects of diabetes management. *Current diabetes reports*. 2002;2(2):153-9.
 12. Hasker SM. Evaluation of the mindfulness-acceptance-commitment (MAC) approach for enhancing athletic performance. Indiana University of Pennsylvania; 2010.
 13. Hayes SC, Masuda A, Bissett R, Luoma J, Guerrero LF. DBT, FAP, and ACT: How empirically oriented are the new behavior therapy technologies?. *Behavior therapy*. 2004 ;35(1):35-54.
 14. Lustman PJ, Gavard JA. Psychosocial aspects of diabetes in adult populations. *Diabetes in America*. NIH Publication. 1995(95-1468):507-18.
 15. Chen SY, Wang HH. The relationship between physical function, knowledge of disease, social support and self-care behavior in patients with rheumatoid arthritis. *Journal of Nursing Research*. 2007;15(3):183-92.