

Effectiveness of Acceptance and Commitment Therapy for Depression, Psychological Well-Being and Feeling of Guilt in 7 - 15 Years Old Diabetic Children

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Background: Diabetes imposes restrictions on physical, emotional, and social functioning of children and adolescents.

Objectives: The aim of this study was to determine effectiveness of acceptance and commitment therapy (ACT) for depression, psychological well-being and feeling of guilt in 7-15 years old diabetic children.

Patients and Methods: This was a clinical trial with pre-test and post-test design with control group. The study population consisted of 34 participants selected using convenient sampling out of all 7-15 years old patients that referred to the Diabetes Association of Tabriz. They were randomly allocated into two equal groups (experimental and control). The experimental group participated in therapy sessions and the control group did not receive any intervention. The research instruments were reynolds child depression scale (RCDS), eysenck feelings of guilt scale and satisfaction with life scale (SWLS).

Results: Multivariate covariance analysis (MANCOVA) showed that the treatment was effective on variables of depression, psychological well-being and feeling guilty in 7-15 years old diabetic children ($P < 0.001$).

Conclusions: The aforementioned treatment is effective and suggested to be used in other psychosomatic diseases of children.

Keywords: Acceptance and Commitment Therapy; Depression; Feeling of Guilt; Psychological Well-Being; Diabetes

1. Background

Diabetes is an ordinary disease in Iran and around the world. It is chronic, progressive, and costly, and creates several complications. For individuals with diabetes it is difficult to accept these threads which may change their lifestyle. In most cases it will not be weird to see mood disorders such as depression in these individuals (1). Depression has a two-way relationship with diabetes and has been proposed as a risk factor for it. Depression is a debilitating and highly morbid disease with a higher prevalence (estimated to be about 33 percent) in diabetic patients than in general population (8 to 20%) (2). This is reported in Iran in type II diabetic patients 84.1 (3). Depression is a mood disorder characterized by the symptoms of low mood, reduction of energy and interest, feeling of guilt, difficulty in concentration, loss of appetite, thoughts of death and suicide, chronic daily stress, lower levels of psychological well-being and consequent low quality of life, insomnia or hypersomnia, significant loss of weight, and dysfunction (4). The other variable studied is the feeling of guilt which is defined as a violation of norms and values taught by ancestors and eradicates self-confidence of the person. In fact, feeling of guilt affects the individual's performance by anxiety and fear in the workplace and makes him fail in adjusting with different environments (5).

Because of the need for self-care, and in most cases, care by family members, diabetic children may feel themselves as a burden on families, compared to children of the same age. These intrusive thoughts can contain enormous impacts. The way of interpreting the annoying thoughts is an important factor in determining the severity of the discomfort and anxiety caused by the consequence of this opinion, such as being an extra member in family, because of raising financial burden on the family, ascribing any action to himself in the family, so that the interpretation of thoughts can be influenced by cognitive biases. Failure to express emotions, or anxiety and worry which leads sometimes to feelings of guilt (6). This feeling may be incompatible with excitement which is not easily amendable and brings stress, inhibition and psychological damage and severe intellectual ruminations occur. Individual's sense may be relieved by compensatory works, partly, but it does not go away completely and can cause mental disorders in diabetic children with feeling of loneliness and alienation, because they assume themselves to be intruders in the family (7).

Research supports that diabetes is a risk factor for developing psychological problems in adolescence. The aim of diabetes treatment is prevention of its complica-

tions and in addition, maintaining optimal psychological well-being of the patients. In the past it was thought that doctors were able to provide favorable conditions for individuals by doing effective treatment and control of disease symptoms, but the evidence suggests that psychological well-being and in wider context quality of life, is something that does not concern only controlling symptoms; when it has special relevance in treating a chronic disease such as diabetes, in addition to controlling symptoms, it has to improve psychological well-being and process of patient's life (8). Psychological well-being is the psychological part of the quality of life structure and is defined as understanding people from living in the area of emotional behaviors, psychological functions and dimensions of mental health (9). Diabetic children do not have appropriate emotional responses and are experiencing lower psychological well-being due to the difficulties imposed by diabetes such as dietary, activity limitation, invasive monitoring of blood glucose, daily insulin injections, physical chronic complications, hospitalizations, and shortened life expectancy (10).

The prevalence of negative psychological outcomes among people with diabetes especially children and adolescents, and their frustration toward the process of medical treatment has implications for the intention of developing psychological interventions in the field of clinical and health psychology. Publicly health instructions for diabetics have always been given based on teaching of self-care. Acceptance and commitment therapy is different from the traditional cognitive behavioral therapy (CBT). ACT has two major goals: (a), and (b) commitment and action toward living a life according to one's chosen values (11). This treatment is trying to increase person's psychological acceptance in the case of subjective experiences (thoughts and emotions) and reduce ineffective control measures mutually and add to the psychological awareness in the present moment (12). There are numerous psychological therapies for the treatment of depression and psychological consequences associated with it in diabetic patients. Some researchers believe that applying this method can increase effectiveness beside reducing disease symptoms, due to its underlying mechanism such as acceptance, awareness raising, desensitization, living in the present moment, observing without judgment, confrontation, and release (13). Results of previous studies showed that the use of mindfulness method will cause a decrease in depressive attacks (3, 14). Boey showed that acceptance of diabetes and its related cognitions significantly associated with lower values of HbA1c and also decreased depression in patients simultaneously. Many of these studies included HbA1c, the primary marker of glycemic control, as an indicator of disease management (15, 16). Despite many words very little research has been done on psychological complications of diabetes with this treatment method. Also, few studies have been conducted on children and adolescents.

2. Objectives

This study seeks to answer the question of whether acceptance and commitment therapy (ACT) is effective for depression, psychological well-being and feeling of guilt in 7-15 years old diabetic children?

3. Patients and Methods

The present study is a clinical trial with control group along with random assignment and pre-test -post-test. The study population included 34 participants out of all 7-15 years old patients referred to the Diabetes Association in Tabriz, Iran, of whom 40 participants were selected using convenient sampling. They were randomly divided into two equal groups (experimental and control). The experimental group participated in therapy sessions and the control group did not receive any interventions.

Entry criteria for this study included: age less than 15 years, having diabetes for at least one year without having major psychiatric disorder. All participants continued their medical treatment process normally. Exclusion criteria, determined by treating physician in most cases, included: needing significant change in the dose of insulin administered during the research, acute or chronic medical illness that makes problems in venesection or intolerance in long sessions, cinching up severe medical complications of diabetes, receiving psychiatric treatment or use of psychotropic drugs and drug abuse during the study period.

Following the research, in order to obey research ethics in addition to obtaining written consent of the children and their parents to participate in research, the evaluations of pre-test were also conducted. Three members of the experimental group and 3 patients of the control group were excluded for various reasons, including being absent in more than three sessions, not participating in pre-test, disease and change of residence city. Finally 17 patients in the experimental group and 17 patients in the control group were randomly settled.

For data collection, the following tools were used:

3.1. Reynolds' Child Depression Scale (RCDS)

The RCDS is a 30-item self-report measure of depressive symptoms developed by Reynolds (17). The items assess symptoms of depression from the criteria listed in major depression and dysthymia in the diagnostic and statistical manual of mental disorders-third edition-revised (DSM-III-R; American Psychiatric Association). All but one of the items assesses clinically relevant depressive symptoms on a 4-point Likert-type scale, ranging from 1 "almost never" to 4 "all the time". Items 1, 5, 10, 12, 23, 25, and 30 were reversed scored so that higher scores on each item reflect higher levels of depressive symptoms. The total score of the RCDS can range between 30 and 121 points. Internal-consistency reliabilities were upper 0.80 seconds, lower 0.90 seconds within and across grades, gender, ethnic groups, and for a subset of learning disabled students. Test-retest reliabil-

ity was good (0.80 seconds). Validity studies support the test based on its congruence with diagnostic systems (in the time), correlations with other established measures (mid 0.70 seconds), and convergent and divergent studies yielded predictable results (17).

3.2. Eysenck Feeling of Guilt Scale

This test consists of 30 items and with a scoring range of 0 and 1. Asgari (18) to assess the reliability of this questionnaire made use of Cronbach's alpha and bisection and for each one achieved the coefficients of 0.67 and 0.68 to arrange. To assess its validity, correlated its score with criterion question score and it was determined that there is a significant relationship between questionnaire scores and criterion question ($P < 0.001$ and $r = 0.28$).

3.3. Satisfaction With Life Scale (SWLS)

To measure psychological (19) well-being, a questionnaire was used which has been introduced by Diener, Emmons, Larsen and Griffin, having 5-item answering seven degree scale (1= completely disagree to 7= strongly agree). Park et al. (20) to determine the reliability of psychological well-being scale obtained a significant negative correlation between the scale and the Beck depression test scores. Schimmack et al. (21) reported the validity of psychological well-being scale by using Cronbach's alpha coefficient for samples of American, German, Japanese, Mexican and Chinese, 0.90, 0.82, 0.79, 0.76, and 0.61, respectively. Schimmack and associates also found a significant correlation between scores on psychological well-being scale with extraversion (0.46) and neuroticism (0.48) scores.

Group sessions were conducted by a psychologist, who directed the entire intervention. Therapy sessions were held in 10 weekly sessions, each session lasted 90 minutes. The topics for each session included: 1) building the therapeutic contract and functional analysis; 2) creative

hopelessness: "The man in the cave" and "The farmer and the donkey" metaphors; 3) values clarification and building a commitment, "The funeral" exercise. Metaphor: "eat the whole apple"; 4) control as the problem: "the rule of 95 - 5%" and control as the problem: "pink elephants" and "what's the name of your mother?" exercises; 5) the alternative to control, be willing as a possibility, acceptance exercises: "Eyes on" exercise; 6) cognitive defusion: "the ride with posters", "milk, milk, milk" exercises and establishing language conventions: "I'm having the thought that I'm failure" instead of saying "I'm a failure"; 7) self as context: metaphor: "chessboard", and screening for barriers and strengthening values: metaphors: "the journey" and "welcome to all and the rude"; 8) acceptance and commitment, fear of commitment: Metaphor: "now you know how to drive"; 9) remember session, internal dialogue: "this isn't working, it's always the same, and I thought it was O.K., but it isn't..." metaphor: "the rider"; 10) remember session and relapse prevention.

After 10 sessions of intervention for the experimental group only, the post-test was performed on both groups. All assessments of participants were conducted by a psychologist who was not the therapist and who was blind to subject's treatment. Due to the illiteracy in some subjects, the data were collected orally for them. In accordance with the code of ethics, a meeting was held for the control group and the questions were answered.

We performed a descriptive study of the dependent variables of interest (means and standard deviations). MANCOVA analyses were carried out to determine group differences. Data analysis was performed with the SPSS statistical package (v. 19.0) and a 5% a priori type I error.

4. Results

The demographic characteristics of the participants are presented at Table 1.

Table 1. Demographic Characteristics and Comparison of Participants' Characteristics in Experimental and Control Groups Before Treatment

| Characteristics | No of Subjects ^a | Groups | | P Value | | |
|--------------------------|-----------------------------|--------------|--------------|---------|--------------|-------|
| | | Experimental | Control | | | |
| | | No. | Mean ± SD | No. | Mean ± SD | |
| Age, y | 34 (100) | 17 | 10.35 ± 2.91 | 17 | 10.59 ± 3.16 | 0.82 |
| Gender | | | | | | 0.37 |
| Male | 17 (50) | 8 | | 9 | | |
| Female | 17 (50) | 9 | | 8 | | |
| Educational level | | | | | | 0.454 |
| Illiterate | 3 (8.83) | 1 | | 2 | | |
| Primary school | 16 (47.06) | 9 | | 7 | | |
| Secondary school | 15 (44.11) | 7 | | 8 | | |
| Type of diabetes | | | | | | 0.367 |
| Type of I | 19 (55.89) | 10 | | 9 | | |
| Type of II | 15 (44.11) | 7 | | 8 | | |

^a Data are presented as No. (%).

Table 2. Mean and Standard Deviation of Variables Depression, Psychological Well-Being, and Feeling of Guilt in the Experimental and Control Groups^a

| Variables | Experimental Group | | Control Group | |
|--------------------------|--------------------|--------------|---------------|--------------|
| | Pre-Test | Post-Test | Pre-Test | Post-Test |
| Depression | 63.81 ± 7.64 | 35 ± 3.42 | 63.40 ± 7.86 | 64.47 ± 7.91 |
| Psychological well-being | 12.88 ± 2.52 | 24.69 ± 2.57 | 12.07 ± 2.89 | 11.87 ± 2.23 |
| Feelings of guilt | 22.94 ± 3.08 | 11.69 ± 1.62 | 22.87 ± 2.97 | 22.60 ± 1.72 |

^a Values are presented as mean ± SD.

Table 3. MANCOVA Results on the Variables of Depression, Psychological Well-Being, and Feeling of Guilt in Both Control and Experimental Groups After Controlling the Pre-Test

| Dependent Variable | Tests of Between-Subjects Effects | | | | |
|---------------------------------------|-----------------------------------|----|-------------|--------|-------|
| | Type III Sum of Squares | Df | Mean Square | F | Sig |
| Group | | | | | |
| Post-test of depression | 6677.30 | 1 | 6677.30 | 173.90 | 0.000 |
| Post-test of psychological well-being | 1104.107 | 1 | 1104.107 | 103.65 | 0.000 |
| Post-test of feeling of guilt | 886.76 | 1 | 886.76 | 163.52 | 0.000 |
| Error | | | | | |
| Post-test of depression | 1113.51 | 29 | 38.397 | | |
| Post-test of psychological well-being | 308.90 | 29 | 10.65 | | |
| Post-test of feeling of guilt | 157.25 | 29 | 5.423 | | |

Table 2 shows mean and standard deviation of variables depression, psychological well-being, and feeling of guilt in the experimental and control group.

To measure the equality of variances, data were evaluated with Levine's test of homogeneity of variance. The results showed that variances of the experimental and control group for Depression ($F = 0.712$, $P = 0.405$), psychological well-being ($F = 3.07$, $P = 0.089$) and feeling of guilt ($F = 1.93$, $P = 0.174$) were equal. The results showed significant homogeneity using MANCOVA tests including Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root. Experimental and control group differ from each other, at least in two dependent variables. Therefore, it can be used to analyze the data. MANCOVA results on the variables of depression, psychological well-being, and feeling of guilt in both control and experimental group after controlling the pre-test are shown in Table 3.

This analysis shows that the two groups are different from each other in three investigated variables according to the means presented in Table 2. Furthermore, an

increase in psychological well-being and a decrease in depression and feeling of guilt scores were observed in the experimental group as compared with the control group.

5. Discussion

The results showed that acceptance and commitment therapy (ACT) is effective on reducing depression and feeling of guilt, and increasing the psychological well-being of diabetic children. These results are consistent with the results of the studies by Whitebird et al. (22), Hor et al. (3), Kaviani et al. (23) and Hayes et al. (24). They believe that applying this method can increase effectiveness besides reducing disease symptoms, due to its underlying mechanism such as acceptance, awareness raising, desensitization, living in the present moment, observing without judgment, confrontation and release (13). It should be noted that this treatment modality is a short-term and structured intervention and like traditional cognitive therapy, the purpose of mental care

education, is not to change the content of the thoughts, rather the aim is to create an attitude or a different relationship with the thoughts, feelings and emotions which includes maintaining full attention with an attitude of acceptance and away from the judgment (25). The focus of this ACT process is to develop and enhance clients' willingness to have and accept their private experiences. Treatment involves exploring the futility of emotional control and avoidance, which can often paradoxically increase individuals' level of distress and deter them from engaging in purposeful and vital, value driven behavior. Instead, individuals are encouraged to accept their private experiences, doing so helps them engage in valued behavior.

Based on acceptance and commitment therapy, the concept of interlinking or emotional defusion is the impact rate that a thought has on behavior; such as the effects of subjective interpretation on the children's feeling of guilt. Context-dependent behavior and think dependent behaviors are placed on the continuum between interlinking or emotional defusion. When a person blends with his thoughts, he does not distinguish his own subjective judgment from reality (24, 26). Thus increasing psychological flexibility of pediatric patients in acceptance and commitment therapy and creating a thinking based on mindfulness can increase the patient's ability to cope with symptoms of disease, following the prescribed diet and some family adversity. Naturally, improvement of symptoms depression and individual commitment to carry out some behaviors in the long term would increase psychological well-being of the child. These findings are consistent with the findings of Gonzalez-Menendez et al. (11) and Clark et al. (27).

Limitation of study population and scarcity of similar studies in Iran and elsewhere can be regarded as a limitation to this study. It is recommended to consider this treatment as a new psychological and supportive treatment in diabetic patients. It can also be useful in other groups of patients such as AIDS, Cancer and patients with depression and its related variables.

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