

## The Effectiveness of Metacognitive Training on Depression level of Diabetes Type 2 Patients

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### Abstract

**Objective:** Anxiety and depression have a great effect on forming diabetes. Intermediations like metacognitive training has great effects on reducing the disease severity. Regarding the importance of depression in patients with diabetes, and the role of training in improving it, this study was done to survey the effectiveness of metacognitive training on depression level of diabetes type 2 patients.

**Materials and Methods:** This was a quasi-experimental. About 30 patients with diabetes type 2, who were members of Yazd's Diabetes Study Center. They were divided in two groups randomly (15 were testing and 15 in control group). The testing group went through metacognitive training process, in 8 sessions. Both groups filled depression questionnaire before and after the course. The data were analyzed using SPSS (version16).

**Results:** There is meaningful difference between test and control group (9.67 vs. 15.81) regarding depression in posttest and meaningfulness.

**Conclusion:** It can be said that metacognitive training has a positive effect on depression level of diabetes type 2 patients.

**Keywords:** Diabetes type 2, Metacognitive, Depression.

### Introduction

Diabetes is one of the health care problem that is growing very fast (1-2). World Health Organization has mentioned diabetes as a hidden epidemic disease worldwide (3). By growing diabetes prevalence, it is one of the death leading causes in the world. One of the most important diseases out of diabetes is psychological problems (4).

According to the Iran National Ministry of Health more than 4 million people have diabetes, and this number is tripled every 15 years. Diabetes is the ninth death reason in Iran (5). According to the latest studies, 14 to 23 percent Iranians older than 30 years are diabetic (6). In Yazd, 16.3 percent of people have diabetes and more prevalent in women than men (7).

Psychological problems are seen in more than one fourth of diabetic patients but most of them are unrecognized. Depression is the most prevalent psychological problem in diabetes patients (8). Depression prevalence is variable in diabetes patients, it was reported between 8.5 to 25 percent. Depression can have effects on diabetes pre-intelligence and studies show that it will be worse when it is not recognized (9). Rajala et al. showed that depression was not related to high blood sugar, but psychosocial problems of illness have a great role in depression. Prevalence of anxiety in Iran is like depression (10).

Pennsylvanian University researchers (2007) found that depressed diabetic patients mortality increased, if they do the programs of depression care (11). Metacognition was introduced by Flavell in mid 70s as any knowledge or activity that its subject is any cognitive action and its setting. In the late two decades, with the growth of metacognitive remedy, a vast group of problems like depression have gone under this remedy (12). Actually, metacognition is a new view by many different methods (13). Despite positive effects of metacognition therapies on chronic diseases like depression in diabetic patients, and according to the Iranian studies, there were a few numbers of studies in this field. According to what was said, if there is a correct metacognitive program for diabetes patients, they will have better treatment remedy and a better life.

This was a quasi-experimental study on 30 patients with diabetes type 2, who were members of Yazd's Diabetes Study Center. They were divided in trial and control groups randomly (15 were in trial and 15 in control group). Data collection tool was Beck's depression questionnaire, that is created by Aaron Beck in 1961, and has 13 parts and any part has 4 sentences that show depression from mild to severe. Questions are of multiple-choice and each question is given a score 0 to 3. So, scores are from 0 to 39. Its Cronbach's alpha coefficient is 0.68, internal consistency coefficients 0.92, and its reliability is 0.94. (14).

The course's schedule was 8 sessions, each 45 minutes of group training weekly. Training material were prepared according to scientific guideline of metacognitive cure of depression (15), and according to social values. Each session started with training, and went on talking about it and ended with homework. Information and assignments were given as pamphlets and discs. Group members filled Beck's depression questionnaire before the course. Two weeks after finishing the course, patients were asked to fill the questionnaire again. Control group also filled the questionnaire before and after the course, without any training.

Collected data was analyzed by SPSS software ver. 16 and ANOCOVA was done to compare the average of depression of two groups.

Timing and materials of training course is as follow (15):

## Materials and Methods

| Session                | Content  |
|------------------------|--|
| <b>First session</b>   | introduction and explaining the need of cure, and introducing the metacognitive model of depression  |
| <b>Second session</b>  | Introducing and practicing faulted mindfulness skill, retarding rumination, attention technic, and assignment for faulted mindfulness skill.           |
| <b>Third session</b>   | Identifying stimulators for faulted mindfulness, challenging metacognitions about beliefs uncontrollability, assignment for faulted mindfulness skill. |
| <b>Fourth session</b>  | Home assignment, checking the application to postpone rumination, introducing attention skill.   |
| <b>Fifth session</b>   | Survey of positive metacognitive beliefs about rumination and faulted mindfulness.   |
| <b>Sixth session</b>   | Review of home assignment, attention skill, testing and challenging negative beliefs about the emotions involved in depression.                        |
| <b>Seventh session</b> | Review and make sure, necessary introduction to prepare participants for the termination of treatment.   |
| <b>Eighth session</b>  | Overview of sessions, discussing about preventing the recurrence, and working on remaining metacognitive beliefs.                                      |

## Results

The results of table 2 shows that metacognitive training has effect on depression level of patients.

As it is seen in table 1 there is a meaningful difference between the mean scores of two groups in depression (9.67 vs. 15.81) that is test group benefit (the lower the depression scores, the less depressed the person is).

## Discussion

The main reason of metacognitive treatment is to help patients to make connection to their mind differently, and prevent processing as being worried, rumination and review (16). Chronic and debilitating nature of diabetes, affects all aspects of life, so it is predictable that psychological problems are seen in these patients (17). This study is done to survey the effectiveness of metacognitive training on depression level of diabetes type 2 patients. The results showed that metacognitive training

reduce depression and improve mental health. The life problems have great effect on people's cognition, metacognitive trainings are designed to affect all these aspects. In the present study, experimental and control groups have significant difference in the mean score of depression in pre-test and post-test.

Our results were according with Yilmaz et al. (2011) findings (18). They say that there was a positive, meaningful relation between metacognitive beliefs and depression. Ghaedy, Heydari et al. (2011) (19-21), Also said that depression has a great role on diabetes and its side effects. However, there are some studies against our results, like Hermans et al (22) And Mosaku et al (23), who said that there is no significant relation between depression level and diabetes.

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**Table1. Mean and standard deviation of depression of test and control group pre and posttest**

| Group      | Number  | Pre-test |                    | Post-test |                    |
|------------|---------|----------|--------------------|-----------|--------------------|
|            |         | Mean     | standard deviation | Mean      | standard deviation |
| Depression | Trial   | 15       | 15/53              | 9/67      | 8/51               |
|            | Control | 15       | 15/73              | 15/81     | 8/52               |

**Table2. Analyzing ANCOVA of metacognitive training on the two groups' depression**

| Source changes | MS              | DF      | F  | Sig   | SD   | P-value |         |
|----------------|-----------------|---------|----|-------|------|---------|---------|
| Depression     | Pretest         | 8603/60 | 1  | 59/94 | 0/00 | 0/34    | ≤ 0/001 |
|                | Join this group | 1608/83 | 1  | 53/08 | 0/00 | 0/66    | ≤ 0/001 |
|                | Error           | 30/17   | 27 |       |      |         |         |

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