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Comparison of the Effectiveness of Acceptance - Commitment Therapy and Mindfulness Therapy on Improving Blood Sugar Control and Weight Control in People with Diabetes II

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Extended Abstract

Background and Objectives

Type 2 diabetes is a chronic metabolic disorder that requires continuous medical and psychological interventions due to its multifaceted complications, including vision loss, kidney failure, and cardiovascular disease. One of the major challenges faced by individuals with type 2 diabetes is inadequate control over blood sugar levels and body weight. Psychological stress, unhealthy lifestyle, and lack of adherence to treatment regimens often exacerbate these problems. Among the psychological interventions of the third wave, Acceptance and Commitment Therapy (ACT) and Mindfulness-Based Therapy (MBT) have shown promising results in managing chronic conditions. However, limited studies have compared their effectiveness on both physiological parameters in diabetic patients. This study aimed to compare the effectiveness of ACT and MBT on blood sugar control (measured by HbA1c) and weight control (measured by BMI) in men with type 2 diabetes.

Materials and Methods

This quasi-experimental study employed a pre-test, post-test, and two-month follow-up design with a control group. The statistical population included overweight men with type 2 diabetes registered with the Iranian Diabetes Association in 2021. Sixty participants meeting inclusion criteria (e.g., HbA1c > 7, BMI > 25, male, no psychiatric conditions, diploma education or higher, no prior exposure to similar psychological interventions) were selected through purposive sampling and then randomly assigned to three groups: Group A (ACT), Group B (MBT), and a control group.

Group A received eight 90-minute weekly sessions of ACT based on Hayes et al. (2006), focusing on values clarification, acceptance, mindfulness training, and committed action. Group B underwent ten 90-minute weekly sessions of MBT derived from Segal et al.'s (2012) protocol, including meditation, breathing

exercises, body scan, and stress management. The control group received no psychological intervention during the study but was offered brief sessions after the final follow-up.

Data were collected using two physiological measures: the HbA1c test (indicating average blood glucose over the past 2–3 months) and BMI (as an index of weight control). Repeated measures ANOVA and Bonferroni post hoc tests were used to analyze data across three time points.

Results

The results revealed significant differences in both dependent variables across time and between groups. In the ACT group, the mean HbA1c level significantly decreased from 8.45 (pre-test) to 6.91 (post-test) and was maintained at 7.10 (follow-up). Similarly, BMI in the ACT group dropped from 35.10 to 28.50 post-intervention and was maintained at 29.80 during follow-up.

The MBT group also showed significant, albeit less pronounced, improvements: HbA1c levels declined from 8.75 to 7.50 (post-test) and 7.89 (follow-up), and BMI reduced from 35.29 to 30.03 (post-test) and 31.28 (follow-up). The control group exhibited no meaningful changes across all measurements.

Statistical analyses confirmed significant within-group and between-group effects ($p < 0.001$). ACT demonstrated greater effect sizes in both blood sugar and weight control compared to MBT, and these differences remained stable at the follow-up stage. The effect sizes (eta squared) were particularly large for weight control ($\eta^2 = 0.93$ within-group, $\eta^2 = 0.56$ between-group).

Discussion

The findings indicate that both ACT and MBT are effective psychological interventions for improving metabolic outcomes in men with type 2 diabetes. However, ACT showed greater effectiveness, possibly due to its integrated approach that combines mindfulness with behavioral commitment and values clarification.

ACT promotes psychological flexibility, enabling patients to accept distressing emotions and thoughts while committing to health-related behaviors. This leads to better adherence to dietary restrictions, physical activity, and glucose monitoring, ultimately improving metabolic regulation and reducing HbA1c levels.

In contrast, MBT focuses on present-moment awareness and stress reduction, which indirectly enhances self-regulation and reduces emotional eating. While MBT was effective in lowering both HbA1c and BMI, its effects were comparatively milder and less sustained than ACT.

The sustained impact of ACT suggests its potential as a primary psychological treatment for improving both psychological and physical well-being in diabetic patients. It also addresses experiential avoidance—a known barrier to behavioral change in chronic illness management—more directly than MBT.

Conclusion

Both ACT and MBT significantly improved blood sugar and weight control among overweight men with type 2 diabetes. Nevertheless, ACT was more effective and produced more stable outcomes over time. The integration of values, acceptance, and committed action in ACT makes it particularly suited for diabetes self-care. Future studies could explore the effectiveness of these interventions across different demographics, including women, younger populations, or individuals with different comorbidities. Incorporating psychological treatments such as ACT into standard diabetes care may enhance treatment outcomes and improve patients' quality of life.