

IMPACT OF ACCEPTANCE AND COMMITMENT THERAPY AND CREATIVE-UNIFYING MEDITATION ON AN ADULT WITH TYPE 1 DIABETES: CASE REPORT

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Abstract

This case report explores the application of Acceptance and Commitment Therapy (ACT) techniques combined with creative-unifying meditation in reducing anxiety, depression and enhancing the satisfaction with life in an adult suspected of type 1 diabetes. The participant, a 37-year-old female, exhibited severe anxiety and depression symptoms at baseline. These symptoms were associated with various life-stressors and were exacerbated by the suspicion of diabetes. After a 4-session intervention practising psychological flexibility and creative-unifying meditation skills, the participant's anxiety and depression symptoms showed significant improvements. Moreover, her satisfaction with life increased, despite the fact that the type 1 diabetes diagnosis was confirmed before ending the intervention. The positive outcomes were maintained at one-week follow-up. While the study highlights beneficial results, limitations, such as a small sample size and short follow-up, underscore the need for future research. The findings suggest that integrating creative-unifying meditation with ACT skills holds promise in addressing psychological challenges associated with diabetes states.

Keywords: type 1 diabetes, acceptance and commitment therapy, creative-unifying meditation, satisfaction with life, mindfulness, anxiety, depression

Mindfulness therapy has gained prominence in mental health interventions, with its efficacy being emphasized in recent meta-analysis. Also, a comprehensive review of 124 studies published in the interval 2014 - 2019 highlighted the value of mindfulness-based interventions (i.e., mindfulness-based stress reduction, mindfulness-based cognitive therapy) in diminishing depressive, anxious symptoms and HbA1c levels (the diagnostic marker for diabetes) in individuals with diabetes [1-5]. Furthermore, a „third-wave” cognitive-behavioral therapy, named Acceptance and Commitment Therapy (ACT; Hayes, 2004; Hayes et al., 2012) was developed to improve psychological flexibility as a transdiagnostic factor in mental health and initial studies showed benefits also for patients with type 1 diabetes.

To the best of our knowledge, studies of these interventions on managing pre-type 1 diabetes or a suspicion of diabetes were not conducted so far. However, the annual conversion rate from pre-diabetes to diabetes was estimated at 5-10% and projections indicated that over 470 million people will have a pre-diabetic state in 2030. These numbers show

the importance of managing pre-diabetes states from a psychological point of view. Receiving a pre-diabetic diagnosis as well as being suspected of diabetes can lead to additional stress, fear of developing full-blown diabetes, changes in self-image, and supplementary emotional strain [6-9].

ACT enhances flexibility in responding to thoughts, feelings, and sensations through six processes: contact with the present moment, acceptance, cognitive defusion, self as context, values and committed action. It encourages constant engagement with psychological and environmental events in the here and now, allowing for flexible attention allocation without judgment – mindfulness. Experiential avoidance can be detrimental if rigidly applied to control thoughts and emotions. In response, ACT introduces acceptance as an alternative, emphasizing the conscious embrace of private events without unnecessary attempts to alter their frequency or shape. Cognitive defusion techniques in ACT aim to change the unwanted functions of thoughts and other events, rather than modifying their shape, frequency, or situational sensitivity. These techniques, ranging from

observing thoughts to externalizing and giving them a size or shape, contribute to psychological flexibility. The self as a context skill allows individuals to be aware of their own experiences without being overly identified with arising sensations.

Finally, ACT encourages people to identify their values in life and learn to act based on them. Values-congruent behavioral change is done through classical procedures such as exposure skill development, modeling[10-15].

In light of the psychological challenges that come with diabetes, ACT is a valuable therapeutic tool for managing mental health. Adults with diabetes may find it harder to maintain relationships, parent, and work due to the intrusiveness of the illness. Moreover, biological factors can also play a significant role. For instance, hyper- and hypoglycemia can directly impact mood and cognitive performance, leading to increased stress levels and depressive thoughts and feelings. As Van Duinkerken (2020) mentions, such conditions can negatively affect executive functioning and diabetes-specific quality of life in young individuals with type 1 diabetes. Chaytor et al. (2017) also found that higher depression scores in older individuals with type 1 diabetes were independently correlated with lower diabetes self-care and instrumental activities of daily living (IADL) scores[16-20].

While mindfulness-based approaches, such as ACT are well-established and supported by research, in this case report, we aimed to combine creative-unifying meditation as a mindfulness-based intervention with the other ACT processes and see the impact on a patient diagnosed with type 1 diabetes. Creative-unifying meditation is part of the Experiential Psychotherapy of Unification (P.E.U.) method (Mitrofan, 2005), a holistic psychotherapeutic approach developed in Romania, which incorporates creative meditation exercises designed to facilitate the connection with oneself. The key tool in the P.E.U. method is the metaphor, which serves as a means to promote focusing attention onto oneself (Mitrofan, 2005). Creative meditation, unlike other forms of meditation, was defined as a therapeutic mental state where the individual actively engages with their inner experiences, actively participating in information processing. This type of meditation was associated with better emotional development and reduced anxiety in drivers. This technique was chosen along with classical mindfulness exercises to enhance diversity within the intervention and to accommodate for the participant's preferences[21-35].

As such, this case report aims to apply specific ACT techniques over four sessions, combined with creative-unifying meditation, to optimize anxiety

and depression levels and improve the satisfaction with life in a patient recently diagnosed with type 1 diabetes. The paper follows the CARE case report guidelines.

Patient information

The case study focuses on a 37-year-old female from Romania, referred to as E., who displayed severe anxiety and depression during the initial evaluation by her psychologist. E. was under suspicion of having type 1 diabetes at the time of assessment and intervention. She had not been diagnosed with any mental disorder prior to this point. Throughout her life, E. has struggled with obesity and has experienced chronic insomnia. The doctors considered these factors, along with polyuria and polydipsia, when contemplating a diabetes diagnosis. E. consulted with two separate physicians, an endocrinologist and a urologist, before being referred to a diabetologist who recommended additional blood tests.

Following a brief unstructured interview, she expressed feelings of disappointment, sadness, and a lack of self-trust. She stated that she works as an entrepreneur in social media, where she has to maintain a client base and produce content for various social networks. Despite her diligent work, she recently lost two important clients, which instilled a deep fear about her professional future. On a personal level, E. has experienced difficulties in establishing stable relationships and has not been able to maintain one for more than a year. At the time of the assessment, she felt deceived by her partner, as he preferred spending more time in the office with colleagues rather than with her. When asked about the basis of her belief and any evidence to support it, E. explained that her partner chose to discontinue the online work program and instead opted for a hybrid work arrangement initially, which eventually turned into working exclusively in the office and regularly staying overtime. E. reported that these relationship challenges affected her ability to manage the diabetes symptoms. E. experienced heightened levels of anxiety and fear due to the absence of exact glycemic values, which contributed to an additional emotional burden, leaving her uncertain about her potential diagnosis of type 1 diabetes.

Psychological assessment

During the initial assessment session, the following measures were used to formally evaluate the participant's mental health and satisfaction with life:

The Hamilton Anxiety Rating Scale (HAM-A; Hamilton 1959) was used to measure anxiety. The scale has 14 items which address both psychological and physiological symptoms associated with anxiety.

These components include anxious mood, tension (including startle response, fatigability, and restlessness), fears (including of the dark, strangers, and crowds), insomnia, "intellectual" (poor memory/difficulty concentrating), depressed mood (including anhedonia), somatic symptoms (including aches and pains, stiffness, and bruxism), sensory (including tinnitus). Each item is scored on a 5-point Likert scale from 0 (not present) to 4 (severe). Total raw scores are used to make inferences regarding the severity of anxiety: 14 – 17 points indicate mild anxiety, 18–24 points indicate moderate anxiety, and 25–30 points indicate a severe level.

Hamilton Depression Inventory (HDI; Hamilton 1960) was used to measure depression symptoms. The scale was validated on the Romanian population (David, 2008). The scale has two versions, with either 17 or 21 items. Each item is scored on a 5-point Likert scale from 0 to 4. The first 17 items gauge how severe the symptoms of depression are. The extra 4 items on the extended 21-items version assess characteristics such as paranoia, symptoms of obsession, and obsessive behavior that may be linked to depression but aren't thought to be markers of its severity. The total score is obtained by summing up the answers and the following benchmarks were used for interpretation: 0–7 points – normal emotional state, 8–16 points - mild depression, 17–23 points moderate depression, and more than 24 points - severe depression.

Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen & Griffin, 1985). A 5-item scale designed to measure global cognitive judgments of one's life satisfaction (not a measure of either positive or negative affect). Participants indicate how much they agree or disagree with each of the 5 items using a 7-point scale that ranges from 7 strongly agree to 1 strongly disagree. In Romania the SWLS was translated by Stevens et. al. (2012) having good reliability.

During the baseline formal assessment, E. obtained a total anxiety score of 25 (severe anxiety), a total depression score of 45 (severe depression) and 15 points on the satisfaction with life scale.

Study design and therapeutic intervention

This pilot study used a single-case design, with three intervals for data collection: baseline (T0) - August 2023, post-intervention (T1) - September 2023, and follow-up (T2) - one week after the last session. The data was collected by the psychologist who also conducted the intervention. The intervention was implemented following the guidelines provided by the theoretical framework of ACT. Each session lasted one hour and began with a

brief mindfulness exercise designed to bring the client to the present moment. Subsequently, the client was introduced to a creative-unifying meditation exercise that aimed to enhance self-awareness, uncover mental and physical barriers, and activate personal resources. After each meditation exercise, the client engaged in a debriefing phase during which she explored the feelings and thoughts experienced during the exercise. The objective was to help E. recognize how the intervention contributed to integrating aspects of her life that had been sources of anxiety. At the end of each session, we inquired about her relationship with diabetes to assess whether the brief intervention had helped her better manage the psychological effects associated with a potential type 1 diabetes diagnosis (the diagnosis was confirmed before the 4th session). A detailed description of all sessions follows.

During the initial session, E. was informed about the study's purpose and gave her consent for her data to be used for research. The mindfulness exercise enabled her to establish a connection with her abdominal area, where she experienced the most discomfort. She associated this discomfort with her malfunctioning pancreas, which she believed contributed to her diabetes. Despite feeling sad about this aspect of her life and other factors that added to her distress, she declined to discuss these issues further at this early E. viewed her potential chronic condition as a powerful wave that constantly overwhelmed her.

During the second session, the psychologist introduced a meditation exercise called "The wave" based on insights from the previous session. In this exercise, the patient was encouraged to visualize herself as a wave and describe her experience. She was prompted to consider the size of the wave, whether it was turbulent or calm, and whether it represented a wave in an ocean, sea, or lake. Subsequently, she was asked to observe and express the emotions and thoughts associated with these mental images. Initially, E. shaped the wave and placed it in a specific location, somewhere near a beach, and she managed to envision the waves hitting the shore at sunset. Then, when the psychologist suggested that she delve deeper into this visualization, mental image emerged in her mind—a moment from six years ago when she was at a pool. She had suddenly jumped into the water and struggled to breathe but ultimately surfaced on her own. This memory was further explored, she recognized that she was starting to experience fear (and fuse with the memory) but had managed to stay with it and move forward (defusing from the memory), eventually transforming that fear into joy. After the exercise, E. expressed a newfound sense of strength. When asked about her feelings on a scale of 0 to 10, where zero represents very anxious and 10 represents

relaxed, she disclosed that she felt at a 7 after the exercise. Regarding her diagnosis, she shared that it felt more like a gentle breeze, and she sensed the power to manage it.

During the third session, the psychologist employed the meditation technique named "The fortress" as a thought-provoking pretext to delve deeper into the resource that the client had previously identified as "power." The primary goal of this session was to aid the client in integrating this resource into both her personal and professional life. She characterized this resource as a fortress with exceptionally high walls, although she acknowledged that she was unable to lower her guard and let down her walls. Additionally, she confessed that throughout her life, she had a deep-seated fear of abandonment, often ending relationships anticipating that she would be abandoned sooner or later. During this session, the client became a conscious observer of her past feelings and experiences (cognitive defusion and self as context were practiced). When asked about her current emotional state, she admitted that she could not identify a specific emotion but recognized that the lingering effects of past abandonment were evident in her present life, particularly in her inability to maintain long-term relationships.

During the final session, E. reported receiving a confirmation of a type 1 diabetes diagnosis from her doctor on that same day. To encourage grounding skills, the psychologist asked the client to imagine herself as a snowflake, starting its descent from the clouds to the ground. E. was then invited to share her experience and describe her feelings. Through this

metaphor, E. discovered her inner strength and likened herself to a snowflake that descended slowly but gracefully and resiliently. During this session, E. openly confessed that she felt much better and realized that she had a valuable resource: inner power. She came to understand that her identity was more than just the concept of "abandonment", and she no longer felt attached to the belief that everyone would leave her. This realization occurred when E. grasped that she had the freedom to shape her own life, like a snowflake falling freely to the ground without any specific force guiding it. Regarding her recent diagnosis, E. now perceived it as light as a snowflake, and she believed this perspective would empower her to better manage it. At the end of the session, the psychologist conducted another assessment of anxiety, depression and satisfaction with life. Additionally, E. was asked to provide free feedback regarding the intervention. One week after the last session, the client was contacted and asked to fill in again the outcome measures.

Outcomes and follow-up

By the end of the intervention, as well as during the follow-up evaluation, E. obtained improved scores compared to the initial testing. Table 1 presents the scores obtained at various moments in time (T0, T1, and T2) and Figure 1 offers a visual representation of the progress. From the first session to follow-up, the client went from severe to mild anxiety, and from severe depression to no depression. Also, the satisfaction with life score doubled.

Table 1. Outcome measures

Outcome	T0 (baseline)	T1 (post-intervention)	T2 (follow-up)
Anxiety	25	18	14
Depression	45	16	7
Satisfaction with life	15	21	30

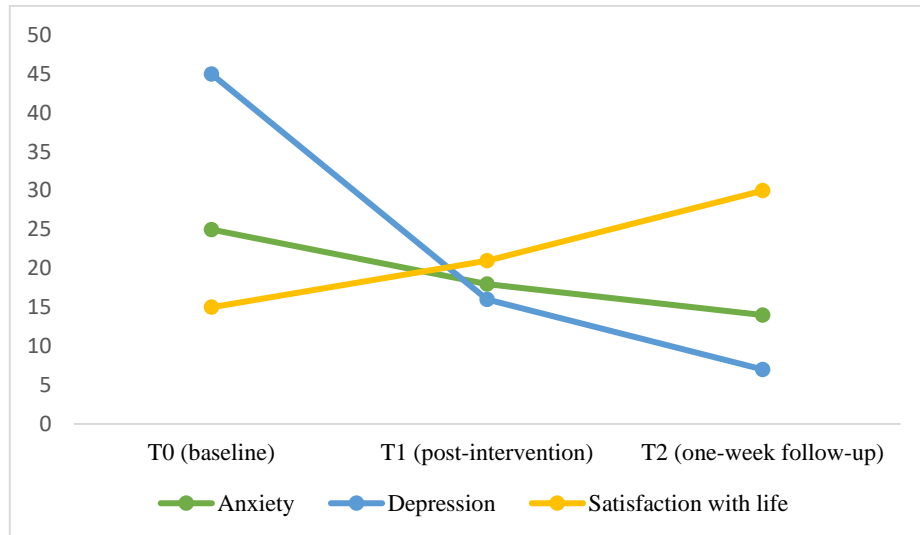


Figure 1. Score changes over time

Besides the outcomes measured with self-report scales, E. said that mindfulness and meditation exercises significantly enhanced her overall quality of life. By engaging in these practices, she found that she experienced a reduction in the severity of the challenges she faced, perceived her diagnosis as less daunting, and coped more effectively with situations that had previously caused her stress. For instance, when it came to dealing with a potential separation from her partner, she stated that while it still had an impact on her, she was now better equipped to manage her emotions and felt less overwhelmed. She also observed that she was less burdened by the memories of past events and was more mindful of how she could relate to them to alleviate her emotional distress. Overall, she felt more confident and had a greater awareness of her psychological resources. In terms of her diabetes diagnosis, E. reported feeling increasingly at ease with the situation, while simultaneously processing the implications for her future.

Discussion

This case report shows that ACT techniques combined with creative-unifying meditation exercises can reduce anxiety, depression, and improve overall life satisfaction in an adult suspected and then confirmed with type 1 diabetes. While this particular intervention protocol was not investigated before, brief ACT interventions (with mindfulness exercises included) were effective in reducing mental health-related challenges in patients with type 1 and type 2 diabetes (Sakamoto et al. 2022; Somaini et al. 2023), reinforcing the role of psychological interventions for facilitating the individual's adaptation to a chronic condition diagnosis. This finding is in line with a review showing that psychological interventions improved psychological adjustment in patients with

type 1 diabetes (Resurrección et al., 2021). Additionally, other authors have concluded that addressing psychological factors as components of integrated diabetes care can improve patient's quality of life and even contribute to achieving metabolic objectives in people who were recently diagnosed with type 2 diabetes (Velázquez-Jurado et al., 2023).

The four-part intervention allowed E. to uncover and incorporate personal resources. The use of metaphorical exercises facilitated a change in her perception of her illness, transforming it from a powerful wave to a gentle breeze, demonstrating the potential of metaphorical interventions in promoting psychological well-being. Although some clients may find these metaphors and experiential exercises beneficial, as E. reported, others may not be receptive to them and may even view them as "unscientific" (Tay, 2017). Therefore, it is crucial to assess the appropriateness of these techniques with the client and adjust them as necessary. Being sensitive to the client's preferences sets the ground for personalised treatment plans. As meta-evidence indicated, in psychotherapy, following personalised treatment goals resulted in larger estimates of effectiveness compared to monitoring symptom checklists (Lindhiem et al. 2016).

While this pilot study yielded promising outcomes, several limitations affecting the generalizability and interpretation of the findings should be acknowledged. The study's exclusive reliance on a single-case design with one participant restricts the external validity of the intervention's efficacy. The short-term nature of the intervention, encompassing only four sessions, offers a limited view of potential long-term impacts. Independent mindfulness or meditation practice outside the

structured sessions was not prescribed, missing an opportunity to enhance the intervention's overall impact.

Conclusions

The absence of a control group and randomization introduces the potential influence of confounding variables, such as life events or previous coping and resilience resources. The short one-week follow-up period limits insights into the lasting impact of the intervention, emphasizing the need for more extended follow-up assessments. Additionally, the

study's cultural specificity to Romania raises considerations about its applicability in different cultural contexts and with clients who dislike the use of metaphors and experiential exercises, highlighting the need for cultural diversification. Future research should aim to expand similar programs to a larger participant pool. Increasing the number of sessions could also provide additional insights into the long-term impacts of the combined ACT and creative-unifying meditation approach.

Disclosures and declarations

The authors did not receive support from any organization for the submitted work.

The authors have no relevant financial or non-financial interests to disclose.

This study was performed in line with the principles of the Declaration of Helsinki.

Informed consent was obtained from the participant. The participant has consented to data publication.

C.S., A.N., and V.C. contributed to the study conception and design. Material preparation, data collection and analysis were performed by C.S., A.N., V.C., and C.I.I. The first draft of the manuscript was written by C.S., A.N., and V.C.. C.I.I. reviewed previous versions of the manuscript. All authors read and approved the final manuscript.

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