

Online acceptance and commitment therapy for patients with diabetes and depression: An exploratory study of Chinese patients' perspectives

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Abstract: Background: The global prevalence of diabetes mellitus is rising, with a significant comorbidity of depression, a condition called “diapression”. Acceptance and Commitment Therapy (ACT) is a transdiagnostic approach that may benefit this population, and online delivery can improve accessibility. However, qualitative insights into the experiences of patients with diapression undergoing online ACT are lacking. **Objective:** This exploratory qualitative study aimed to investigate the perspectives of Chinese patients with type 2 diabetes and comorbid depression on an online, self-help ACT intervention, focusing on its acceptability and potential improvements. **Methods:** Semi-structured interviews were conducted with eight participants one month after they completed an 8-week online ACT program delivered via WhatsApp/WeChat. Data were analyzed using inductive thematic analysis. **Results:** Five key themes were identified: (1) the perceived usefulness of ACT techniques for improving self-management and reducing distress; (2) difficulties in understanding certain abstract ACT concepts; (3) a preference for brief, succinct intervention components; (4) the benefits of online delivery for flexibility and accessibility; and (5) need for more personalized interaction and prompt feedback **Conclusion:** Online ACT was generally acceptable to patients with diapression. The intervention was valued for its practical skills and flexible format but could be enhanced by incorporating more real-life examples, culturally adapting concepts, and integrating methods for increased interaction, such as AI chatbots. These findings provide crucial insights for refining online self-help psychotherapies for this population before conducting larger-scale trials.

Keywords: acceptance and commitment therapy; online intervention; diabetes; depression; diapression; qualitative study; patient perspectives; China

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Introduction

According to the International Diabetes Federation (2021), 537 million adults (20-79 years) worldwide suffer from diabetes mellitus (DM) and the number is projected to rise to 783 million by 2045. Around 90% of patients with DM have Type 1 DM (International Diabetes Federation, 2021). The prevalence of diabetes in adults in Hong Kong was estimated to be 10% (Quan et al., 2017). According to a recent study by the Hospital Authority (2020), there has been a surge in the number of patients with newly diagnosed diabetes in the public healthcare system by 47% since 2011/12, and the number is expected to continue to rise.

Over the past three decades, there has been an increasing number of patients with comorbid depression in diabetes (Khaleedi et al., 2019; Zheng et al., 2018), which amounts to 30% depending on the severity of symptoms (de Groot et al., 2001; Lustman et al., 2000; O'Connor et al., 2009). Depression is a mood disorder characterized by depressed mood, loss of interest and motivation, and suicidality (American Psychiatric Association, 2013). A bidirectional relationship between diabetes and depression has been identified from epidemiological studies, (Golden et al., 2008; Katon et al., 2007; Katon, 2008), such that the presence of diabetes increases the risk of depression and vice versa. Patients with diabetes and comorbid depression have been found to have poorer self-care and treatment adherence (Ciechanowski et al., 2000; Gonzalez et al., 2008), glycemic control (Lustman et al., 2000), more diabetes complications (de Groot et al., 2001; van Steenbergen-Weijenburg et al., 2011), and increased morbidity and mortality (Hofmann et al., 2013; Lloyd et al., 2018; Nouwen et al., 2019). The term 'diapression' was used to describe the intertwining symptoms of diabetes and depression that make management of both conditions difficult (Ciechanowski, 2011). To date, there is no international guideline on the treatment of comorbid depression in diabetes.

Acceptance and Commitment Therapy (ACT) is a psychological therapy that encourages participants to change their relationships with their thoughts, feelings, physical sensations, circumstances and behaviors through mechanisms

of acceptance, mindfulness and value-based action (Hayes et al., 2006). From the theoretical perspective, ACT targets addressing DM patients' maladaptive cognitive fusion and experiential avoidance towards diabetes-related private events, which are the two aspects linked with adverse outcomes in diabetic patients as indicated in early research (Greco et al., 2008; Hayes et al., 2006). ACT promotes psychological flexibility, which involves psychological acceptance and committed action in the direction of values-based living (Hayes et al., 2006). Key in the ACT model is 'workability,' helping develop greater awareness of one's behaviors and whether those behaviors are working in terms of effectively solving the problem and of moving one toward valued ends. ACT has been recommended as a transdiagnostic therapy for more than one mental and physical health condition (Dindo et al., 2017). Rather than addressing a specific symptom or disorder with an outcome-focused goal of symptom reduction, ACT targets the common psychological processes that lead to changes, psychological flexibility, and experiential avoidance. The theoretical framework of ACT aims to stimulate valued behavior change and acceptance of disturbing thoughts and feelings (Gregg et al., 2007). Thus, ACT goes beyond any single mental or physical health condition and offers a unified model of behavioral change with multiple favorable outcomes (Dindo et al., 2017).

An increasing number of studies support the suitability and effectiveness of ACT for online treatments. Online treatments are believed to improve the accessibility of evidence-based treatments for patients who have difficulty finding time for treatments (Sairanen et al., 2020), reduce the cost of delivery, burden on staff resources, and training needs (Levin et al., 2014). Promising results of web-based ACT interventions were found in improving anxiety (Levin et al., 2017), chronic pain (Buhrman et al., 2013), and depression (Levin et al., 2014). A systematic review and meta-analysis identified four RCTs on depression, but none of them was conducted among DM patients (Thompson et al., 2021). Two online ACT-based pilot/feasibility studies for DM patients' self-management or diabetes distress were identified (n=11 to 42) (Bendig et al., 2021; Nes et al., 2012).

To our knowledge, there was no qualitative study exploring the experiences of patients with diapiression who attended online ACT for their self-management of diabetes and depression. Such qualitative studies can offer in-depth insights on which aspects of the intervention should be improved. Therefore, this study aims to conduct individual interviews to explore attitudes towards our online ACT intervention for diapiression.

Method

Study design

Participants were recruited from a pilot study of online ACT intervention for diaphragm in Hong Kong. Inclusion criteria for the intervention included (1) being newly diagnosed with Type 2 Diabetes Mellitus within the last two years; (2) scoring ≥ 7 on the Patient Health Questionnaire (PHQ-9), indicating depression of DM patients (Zhang et al., 2013); (3) able to understand and speak Chinese; (4) have access to the Internet; (5) 18-60 years old. The intervention was adapted from the established ACT treatment manual by Harris (2019) and the Acceptance and Commitment Therapy for Diabetes Self-Management group by Gregg and his team (2007). The program consisted of 8-weekly sessions of 1 hour each (Introduction, Values clarification, Cognitive defusion, Mindfulness, Committed action, Self as context, Review and continued action in support of values, and Moving forward), which were delivered via WhatsApp/WeChat.

Interview procedure

The semi-structured interviews presented in this study took place one month after the end of the intervention project. Participants who took part in the 8-week online ACT were invited for the interviews. Purposive sampling was used regarding gender, age, and number of sessions finished by the participants (Table 1). Eight individual interviews were conducted by trained research assistants. Everyone was interviewed for about 45 minutes via Zoom. Prior to each interview, research assistants explained the purpose and procedure of the study and obtained informed consent from the interviewees. Ethical approval was obtained from the corresponding author's university.

Table 1

The background information of the interviewees ($n = 8$).

Participant	Age	Gender	Number of sessions completed
P1	55	Female	8
P2	37	Male	8
P3	46	Female	7
P4	52	Male	6
P5	49	Female	4
P6	43	Male	4
P7	35	Female	5
P8	59	Male	8

The interview mainly focused on three questions: (1) What is perceived by patients as helpful or unhelpful regarding the content and delivery method of the intervention? (2) What benefits and harms did they experience from the intervention? (3) How could the intervention be refined to make it more acceptable in a full-scale trial? The semi-structured interviews followed an interview guide, which resulted in an iterative approach, for emerging themes and perspectives to be explored (Kvale & Brinkmann, 2015). The interview guide was pilot tested prior to use. All interviews were audiotaped. Field notes were made during and immediately after the interviews.

Coding and analysis

Inductive data analysis followed the six-stage thematic analysis approach by Braun and Clarke (2006). The rigor of this study was ensured through careful measures to enhance credibility, transferability, dependability, confirmability, and reflexivity, based on recommendations in methodological papers (e.g., Korstjens and Moser, (2018). To establish credibility, investigator triangulation was employed by involving two more researchers in coding, analysis, and interpretation decisions.

Results and discussion

Four overarching themes were identified: (1) Usefulness of the ACT techniques, (2) Difficulties in understanding the ACT concepts, (3) Preference of brief interventions, (4) Benefits of the online delivery, and (5) Need for interaction (Table 2).

Table 2
Themes and quotes.

Theme: Usefulness of the ACT techniques

“I used to get stuck in a vicious circle. I knew I should change my lifestyle, but I felt low energy. Then I blame myself for doing nothing. During the intervention, I realized that I should be more compassionate to myself. I have been doing a hard task. Living with diaphragm is not easy. It is okay to feel sometimes tired.”

“It helped me to realize that I should focus on my values and what kind of persons I really want to be, instead of just getting stuck in the past, which helps me to move forward and take action to do something that really help me to become a better me.”

“I think the skills helped me to sort of move outside of myself and look at myself from different perspectives.”

Theme: Difficulties in understanding the ACT concepts

“It was difficult to understand the concepts, such as Self as Context. I want more examples of how to apply these concepts in my daily life.”

“There were a lot of concepts and skills. I felt there were a lot of new stuff to learn. Kind of burdensome.”

“It was a bit theoretical and rational.”

Theme: Preference of brief interventions

“It was difficult for me to engage in an activity for eight weeks in a row.”

“I liked the design that each video was short, and I could make use of fragmented time to watch it.”

Theme: Benefits of the online delivery

“I was very busy because I had to work and take care of my children and parents. The online delivery was flexible. I could finish the session whenever I wanted.”

“I really liked the fact that it was online. I had a full-time job. It’s hard to be in a particular place for a particular time for any interventions. It was less stressful for me.”

Theme: Need for interaction

“Prompt feedback and interactions would help me to engage in the intervention.”

“I would like to have more personalized feedback from the therapist.”

Most participants expressed that the ACT skills learned throughout the intervention helped improve their diabetes self-management and reduced their distress. Among the different ACT techniques introduced in the intervention, the participants particularly valued learning to take a different perspective to think of their relationships with stressful experiences. These skills enabled patients to step back from their worries and to appreciate the time and care spent on themselves. By learning to view their worries from a new angle, patients were able to distance themselves from negative thoughts and feelings, thereby fostering a sense of self-care and introspection (Wallace-Hadrill and Kamboj, 2016). The valued action component may be particularly useful to activate actions for these patients who needed to make changes in their lifestyles but felt no energy due to depressive symptoms. By emphasizing the importance of aligning actions with personal values, the intervention effectively encouraged individuals to overcome barriers to behavior change and engage in activities that were beneficial to their well-being (Russo-Netzer and Atad, 2024). Some ACT techniques may be particularly effective for emotional distress while others are for behavioural activation. Future studies should test their roles to maximize the intervention effectiveness.

However, some participants highlighted the challenges they faced in understanding and applying multiple ACT concepts. The observation that individuals found certain concepts difficult to understand highlights the need for clearer explanations and practical examples to enhance comprehension and application in daily life. More

real-life examples demonstrating how ACT concepts can be integrated into their everyday experiences are warranted. Especially considering these concepts and techniques were originally developed and tested in Western cultures, culturally adapting the concepts, measures, illustrations, examples, and practices is warranted. Furthermore, participants' perceptions of the intervention as overwhelming due to the volume of new concepts and skills introduced suggest a potential need for a more structured and gradual approach to learning. The sense of burden underscores the importance of balancing the introduction of new material with opportunities for reflection, consolidation, and skill practice to prevent cognitive overload and enhance retention. It also echoes another theme that some participants preferred a brief intervention. It is particularly important for middle-aged patients with full-time work and the roles of family caregivers as they have little time to take care of themselves (Becque et al., 2023; Krogh et al., 2015). By offering them shorter and more succinct intervention components, interventions can cater to individuals' preferences for bite-sized learning experiences that align with their attention spans and availability. This approach not only enhances accessibility and engagement but also promotes a sense of empowerment and autonomy, as participants can navigate the intervention content in a manner that suits their unique needs and preferences. The brief version of ACT, such as Focused ACT (Glover et al., 2016; Stefanescu et al., 2024), may be feasible for such patients. However, whether brief ACT would be effective to reduce depressive symptoms and enhance diabetes self-management remains unknown and needs more trials.

Another solution for busy patients is online intervention. Most participants expressed positive attitudes toward online intervention. Participants' reflections on the flexibility offered by the online delivery format resonate with the challenges they faced in managing work, caregiving responsibilities, and other obligations. The ability to complete sessions at their own pace and convenience empowered participants to prioritize self-care and mental health amidst demanding schedules, thereby reducing the stress associated with adhering to rigid time constraints or location-based requirements (Kishita et al., 2022). However, a couple of the participants highlighted the importance of prompt and personalized interactions in online intervention. It reflects the significance of establishing a supportive therapeutic relationship and tailoring interventions to meet the unique needs and preferences of individuals seeking mental health support, which is originally an advantage of face-to-face therapies (Ciharova et al., 2023). AI chatbots can play a valuable role in addressing these issues and have advantages such as 24/7 availability and scalability. Future studies should explore whether adding this technology would meet the needs of the participants and enhance intervention efficacy.

Conclusions

Overall, online self-help ACT was acceptable to patients with diaphragm. Positive experiences and the acceptability of the intervention were facilitated by learning helpful ACT skills and recognizing the benefits of the online intervention. It is recommended that a future full-scale effectiveness trial includes more real-life examples, experiential practices, and interaction components. It may also motivate participants to be more engaged in the online ACT. However, it is a challenge to ensure the intervention effectiveness and keep it brief and low intensity. These suggested improvements and challenges should also be considered in the development of other future online self-help psychotherapies for patients with diaphragm.

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