



Psychosocial Determinant of Diabetes Management among Individuals with Type 2

Diabetes: A Focus group discussion

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Abstract

Background: Diabetes distress, poor self-care, and impaired coping are the common psychological and behavioral issues that have always been known to complicate the management of type 2 diabetes mellitus (T2DM). Mindfulness-based therapies, especially Acceptance and Commitment Therapy (ACT), have demonstrated potential to alter these outcomes although qualitative data are needed to supplement quantitative data.

Aim: The study has investigated the attitudes of the stakeholders regarding the psychological and behavioral impact of T2DM and the applicability of mindfulness-based interventions.

Method: A purposively selected sample size of 6 participants including one doctor, dietitian, physiotherapist, clinical psychologist, patient with T2DM, and caregiver participated in a qualitative focus group discussion. The FGD guide was prepared based on searching literature systematically and attended the top themes of distress, self-care, coping, psychological flexibility, and social support. The two-hour meeting took place online, was recorded, and transcribed verbatim, and analyzed using themes.

Findings: Emotional distress, irregular self-care practices, social support were observed to have displayed key difficulties associated with them. The participants also pointed to the usefulness of mindfulness and ACT-derived interventions in improving coping, psychological flexibility, as well as adjusting towards following self-care regimes, with a need to extend such intervention models to take into account the cultural specifics of the targeted population.

Conclusion: Mindfulness-informed interventions, and in particular, ACT-based intervention programs, have a potential to positively affect psychological and behavioral outcomes of T2DM illness management through mitigating distress and improving self-care and support systems.

Keywords

Type 2 Diabetes Mellitus, Mindfulness, Acceptance and Commitment Therapy, Psychological Outcomes, Focus Group Discussion, Self-care.

Introduction

Type 2 diabetes mellitus is one of the major health issues globally which is linked to severe morbidity with chronic complications that pose a strong healthcare challenge to the health system. In addition to the physiological aspects, the disease has a strong interrelation with psychological distress, low self-efficacy, and low self-management behaviors contributing to problematic glycemic control. The past decade has seen research indicating the promise of mindfulness-developed and acceptance-based interventions as adjunctive to usual care, improving both mental and metabolic outcomes. Recently, a combination of meta-analytic and randomized control trial evidence has revealed evidence of positive changes in self-efficacy, diabetes-related distress, and HbA1c after structured psychological interventions (Chen et al., 2021; Ngan et al., 2021; Guo et al., 2022).

The current focus is on integrating mindfulness, acceptance and emotion regulation therapy as part of diabetes care and this is the trend towards holistic concept of management. The experimental studies carried out in various cultural contexts demonstrate that the mindfulness-informed programs not only help decrease psychological distress but also have good impact on physiological parameters including the HbA1c and weight control (Eisazadeh et al., 2022; Kılıc et al., 2023; Roja et al., 2023). Indicatively, mindfulness stress-reduction interventions (delivered by nurses) were shown to positively (and significantly) affect self-care behaviors and glycemic levels (Guo et al., 2022), and acceptance-based diabetes education has demonstrated positive effects on self-management and distress (Ngan et al., 2023). Furthermore, the systematic reviews post consistently positive results in use of acceptance and commitment therapy in improving well-being and providing metabolic control, verifying the potential of following the usage as a viable addition to medical therapy (Eisazadeh & Rahimian-Boogar, 2024; Hajati et al., 2024).

In spite of these developments, there were still gaps with regard to the long-term sustainability of metabolic advantage and the extent to which findings can be generalized to other patients. Accordingly, the issue to be discussed in the current study is the necessity to test the efficacy of mindfulness-informed interventions on glycemic and other diabetes-related outcomes in people with type 2 diabetes in a formal and clinically relevant manner. The study is important as it can provide evidence in the need to have psychological therapies incorporated into diabetes management to enhance emotional life as well as the physical body. The objective of the given research work is to evaluate the efficacy of mindfulness-informed intervention on psychological outcomes and glycemic control in adults with type 2 diabetes.

Method

A qualitative focus group discussion (FGD) was done to understand psychological and behavioral consequences of type 2 diabetes mellitus (T2DM) and to support the quantitative result of the main study. A total of six participants were recruited, purposely to reflect a diverse opinion: a doctor/endocrinologist (D1), dietitian (DT1), physiotherapist (PT1), clinical psychologist (CP1), a patient with T2DM (P1), and a caregiver (CG1). A structured literature search was conducted across the following databases/sources: PubMed, Scopus, PsycINFO, ScienceDirect and Google Scholar, and key terms and Boolean combinations to find the main themes of diabetes distress, self-care, coping, psychological flexibility, and social support included: T2DM AND ACT AND psychological outcomes and Diabetes AND mindfulness AND self-care. It took place over the videoconference connection on Zoom and lasted two hours to provide accessibility and confidentiality regardless of the role and participation was to be equal. The ethical issues were maintained through the obtaining of the informed consent, anonymization of the responses via coding the participants and the cluster of confidentiality. The discussion was recorded with Awesome Screen shot (<https://www.awesomescreenshot.com/video/41110102?key=cc6a6af5060f13303e18913985b0679e>) in which verbal and non-verbal cues were captured, transcribed verbatim, anonymized, and systematically coded to achieve a thematic analysis. This method brought in valuable, triangulated information on stakeholder experiences relating to the acceptance- and mindfulness-based-informed interventions, particularly, Acceptance and Commitment Therapy (ACT) due to which the intervention-models were directed in a way that could work with T2DM in culturally relevant ways.

Results

Table 1: Demographic Data of FGD Participants

Participant Code	Role	Gender	Age	Years of Experience	Educational Qualification	T2DM-Related Involvement
D1	Doctor (Diabetologist)	Female	44	16 years	MBBS, FCPS (Medicine)	Manages diabetic patients in clinical settings; experienced in pharmacological interventions
DT1	Dietitian	Female	36	11 years	MSc (Clinical Nutrition)	Provides dietary counselling and individualized diabetic meal plans
PT1	Physiotherapist	Female	39	12 years	DPT, MPhil (Rehabilitation)	Works on physical activity and exercise

CP1	Psychologist	Female	37	10 years	MS (Clinical Psychology)	regimens tailored for diabetic patients Applies ACT and CBT to help diabetic patients with psychological flexibility and distress
P1	Patient with T2DM	Female	55	N/A	Intermediate	Diagnosed with Type 2 Diabetes for 8 years; adheres to oral medication and lifestyle change
CG1	Caregiver	Female	42	7 years (as informal caregiver)	Matric	Caregiver to elderly mother with diabetes; manages emotional and dietary support

The demographic profile of the focus group is described in Table 1 and indicates an equal balance between the expert group, a patient with T2DM, and a caregiver, all of whom were female. Such diversity of life experiences and knowledge base--clinical/medical, nutritional, psychological, first-hand experience with diabetes patients--provided a broad outlook on how to tackle management of diabetes.

Table 2: *Merging Nodes into specific codes, and Interviewer identity (N =6).*

Serial No.	Code Name	Code	Merged Nodes (Combined Participant Responses)	Interviewer Identity	Total Nodes
1	Diabetes Distress	DD	"Despite following the plan, my sugar is still high and it frustrates me." "I feel overwhelmed when I can't control my eating habits." "Patients often express guilt and sadness." "Some cry during sessions, saying they're tired of being tired." "I isolate myself when I feel I've failed managing my diabetes."	D1, CP1, P1, CG1	5
2	Diabetes Self-Care Activities	DSCA	"I try to follow my diet but sometimes cultural foods make it hard." "Exercise is not consistent among patients." "Some patients manage meds but ignore glucose checks." "Most people skip meals instead of eating right." "I often forget my evening walk after work." "Patients are confused by conflicting dietary advice."	D1, DT1, PT1, P1, CG1	6
3	Diabetes Management Self-Efficacy	DMSE	"I believe I can control my sugar if I strictly follow the schedule." "With proper knowledge, patients do become confident." "Seeing small successes builds my trust in myself." "When I fail once, I lose motivation." "Family encouragement increases my ability to manage." "We set achievable goals to boost their confidence."	D1, DT1, CP1, P1, CG1	6

Psychosocial Determinant of Diabetes Management among-----Batool & Mubashir

4	Health Beliefs	HB	"My family thinks sugar can be flushed out by herbal teas." "Patients still think insulin is a punishment." "Traditional beliefs often interfere with treatment compliance." "I stopped meds once thinking I was cured because my sugar was normal." "Many believe diabetes is caused by stress or fate." "Home remedies are often preferred over prescribed meds."	D1, DT1, P1, CGI	6
5	Psychological Flexibility	PF	"ACT changed my thinking — I now accept diabetes as part of life." "We encourage focusing on values rather than perfect sugar readings." "Letting go of control helped me emotionally." "Flexibility helps patients who previously resisted structured routines." "Patients who adopt mindfulness report reduced stress." "I no longer panic during glucose spikes."	CP1, P1, D1, CGI	6
6	Perceived Social Support	PSS	"My daughter's support keeps me on track." "Patients feel motivated when family members show interest." "Support groups helped normalize my experience." "Sometimes I feel alone despite being surrounded by people." "Caregivers also need support." "Strong social circles correlate with better diabetes control."	CGI, P1, CP1, DT1, D1	6
7	Coping Mechanisms	CM	"I use breathing exercises during anxiety episodes." "My faith gives me strength to carry on." "I journal when I feel low." "Patients develop rituals to manage tough days." "Talking to peers helps release emotional burden." "Some cope by complete avoidance, which worsens outcomes." "Distraction and art therapy work for some."	CP1, P1, CGI, D1, PT1	7
8	Self-Compassion	SC	"Instead of punishing myself for mistakes, I forgive and reset." "ACT taught me to be kinder to myself." "Patients blame themselves less after sessions." "Self-kindness helps me stay consistent." "Earlier I used to feel ashamed after overeating, now I reflect and improve."	CP1, P1, DT1, CGI, D1	6

"Compassion improves mood and discipline together."

Table 2 shows how the merged nodes based on participant responses were combined into key codes, including diabetes distress, self-care, self-efficacy, health beliefs, psychological flexibility, social support, coping mechanisms and self-compassion. Both codes combine the multiplicity of views of the participants, presenting both weaknesses and opportunities in the management of T2DM, and bringing out the interviewer identities and total nodes that influenced analysis.

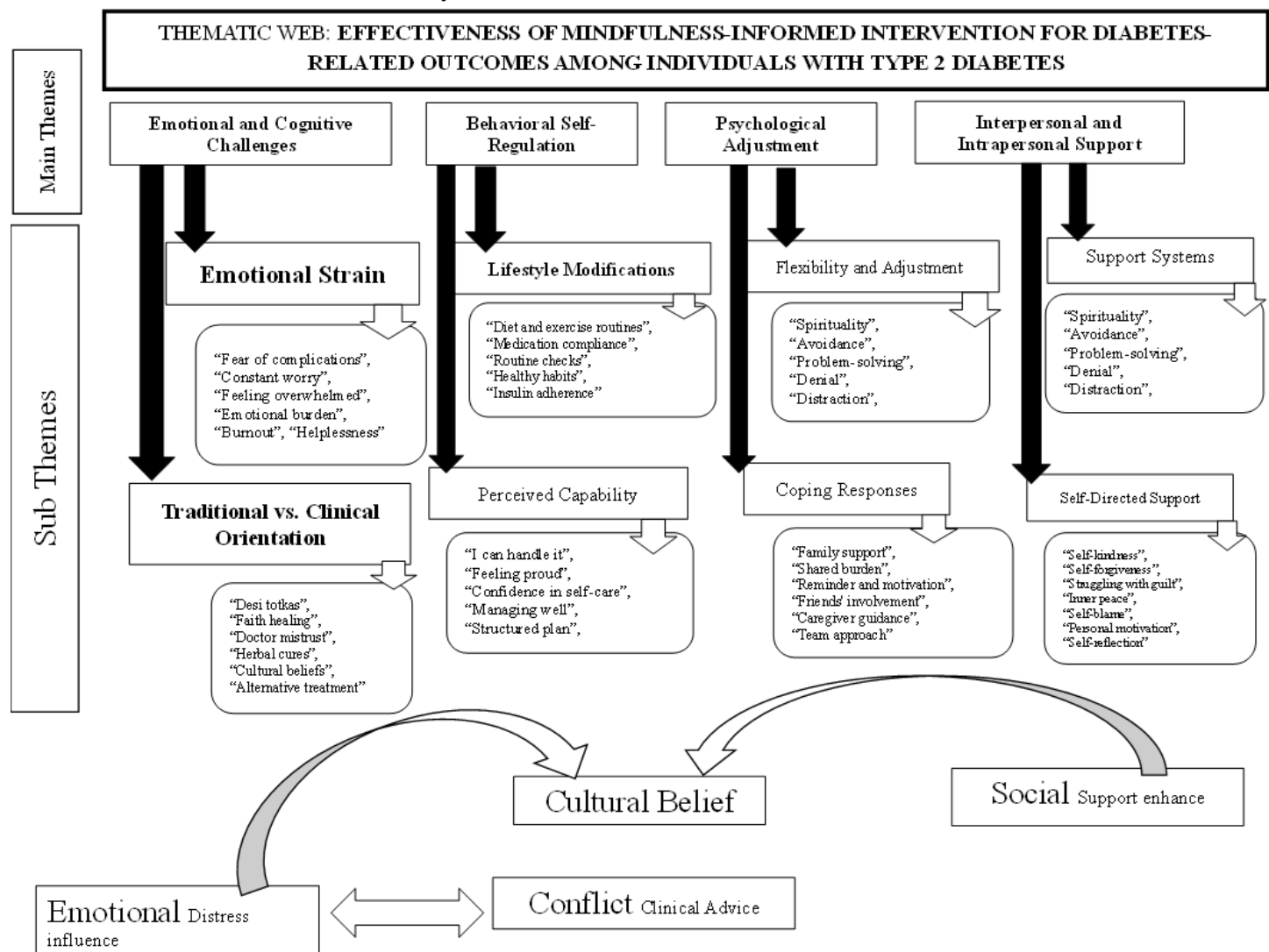
Table 3: Merged Codes, Nodes, Word Frequency Hierarchy, Analytical Themes, Sub-Themes, and Explanation (N = 6)

Merged Code Category	Included Codes	Code	Node	Hierarchy of Word Frequency	Merged Analytical Theme	Theme	Sub-Theme	Explanation
Emotional and Cognitive Burden	Diabetes Distress, Health Beliefs	DD, HB	“emotional burden”, “overwhelmed”, “sugar fluctuations”, “fear”, “frustration”, “burnout”, “desi totkas”, “herbal cures”, “faith healing”	High	Emotional and Cognitive Challenges	Emotional Challenges	Emotional Strain	Participants frequently reported intense emotional strain caused by diabetes management. Stress from fluctuating sugar levels, burnout, and traditional health beliefs led to confusion and anxiety, complicating compliance and trust in treatment. There was also a noted conflict between modern medicine and traditional remedies, influencing adherence and psychological well-being. Consistent self-care behavior such as exercise and healthy eating was emphasized as critical.
				Moderate		Cognitive Orientation	Traditional vs. Clinical	Participants who displayed greater confidence in managing their diabetes reported more stable health
Behavioral Self-Management	Diabetes Self-Care Activities, Diabetes Management Self-Efficacy	DSC A, DMS E	“diet”, “exercise”, “routine”, “insulin use”, “compliance”, “healthy habits”, “confidence”, “managing	High	Behavioral Self-Regulation	Behavioral Regulation	Lifestyle Modifications	

			well”, “stable sugar levels”					outcomes and more effective adherence. Self-efficacy was described as a key psychological driver for successful disease management, promoting independence and adherence. Participants showing psychological flexibility described an improved ability to adapt to the chronic nature of diabetes. They practiced value-based coping and acceptance strategies aligned with ACT principles, fostering better resilience and adjustment. While some employed constructive coping mechanisms (e.g., spirituality, problem- solving), others relied on denial or avoidance, which hindered management outcomes. Family and friends played a significant role in disease management and emotional stability. Those with strong support networks fared better psychologicall
				Moderate– High		Personal Control	Perceived Capability	
Psychosocial Adaptation	Psychologi cal Flexibility, Coping Mechanism s	PF, CM	“acceptance”, “present moment”, “adapt”, “let go”, “values”, “spirituality”, “problem- solving”, “avoidance”, “denial”, “distraction”	Moderate	Psychologic al Adjustment	ACT Core Processes	Flexibility & Adjustment	
				Moderate		Stress Response	Adaptive vs. Maladaptiv e	
Relational and Intrapersona	Perceived Social Support,	PSS, SC	“family support”, “friends”, “emotional help”, “shared	High	Interpersona l and Intrapersona	Interperson al Relationshi ps	Support Systems	

1 Support	Self-Compassion	burden", "self-kindness", "self-forgiveness", "inner peace", "patience"	1 Support	Self-Awareness	Self-Directed Support	y and clinically. Participants reported struggling with self-blame and a lack of self-compassion. A need for greater self-forgiveness and emotional kindness was acknowledged as crucial to long-term emotional well-being.
		Low–Moderate				

Table 3 summarizes the codes into general analytical themes, which reveal how lives are complex interplays of emotional and cognitive burden, self-management of behavior, psychosocial adaptation and relation support in diabetes life. Such sub-themes as emotional strain, lifestyle changes, psychological flexibility through ACT, and self-compassion ensure how patients reconcile the needs of clinic practice with an individual coping mechanism indicating the key role of psychological flexibility and social interactions in effective T2DM management. Thematic web indicate the whole FGD thematic layout.



Discussion

Already mindfulness-informed interventions have proven to be very promising in clinical and psychological betterment of type 2 diabetes sufferers. Chong, Chung, and Chien (2021) conducted a meta-analysis and showed that mindfulness- and acceptance-based interventions help to decrease diabetes distress and improve glycemic control, establishing a reason to implement these tools in the management of diabetes. In line with that, Guo et al. (2022) have found that nurse-based mindfulness stress-reduction intervention led to lower HbA1c and better self-management of diabetes, which proves that even psychosocial interventions can have some quantifiable effects on patients.

ACT is a psychological intervention that has been notably improved in this group of people in terms of self-care and alleviating distress. Hajati et al. (2021) demonstrated that A-based emotion regulation therapy reduced the level of diabetes control and led to its subsequent randomized trial that confirmed the superiority of ACT over other forms of emotion regulation in reducing HbA1c and increasing self-care (Hajati et al., 2024). These results correspond to the conclusions of the systematic review conducted by Eisazadeh and Rahimian-Boogar (2024), who believe that psychological flexibility is the key to long-term diabetes management.

Although mindfulness-informed interventions are gaining acceptance as promising measures in promoting diabetes, self-efficacy has been identified as a key point of mediation in the correlation between mindfulness-informed interventions and diabetes outcomes. Chen et al. (2021) found that empowerment-based interventions had a significant effect that both reduced HbA1c and increased HbA1c. Liang (2022) reproduced this effect in a doctoral study, to observe that an increase in self-efficacy also led to compliance with insulin regimens and decreased diabetes-related distress. Collectively, these results indicate the necessity of including both mindfulness and empowerment in an effort to promote lasting changes in behavior.

The recent developments on digital delivery of mindfulness-informed care have widened the accessibility of said interventions. According to Kilcet al. (2023) their online ACT and self-compassion program significantly decreased the amount of any psychological distress experienced by people with T2DM and therefore it could be implemented more widely. The study by Roja et al. (2023) also reiterated the role of ACT in improving emotional control and diabetes management self-efficacy, which was better than emotion-based therapy. The results indicate that ACT-based interventions can be successfully modified to a number of different platforms and patient populations.

Comparative studies also demonstrate that ACT has a more or less steady superiority to other types of therapeutic models. ACT brought about superior self-care improvement as compared to reality therapy (Zandi et al., 2023) whereas ACT and mindfulness therapy had a significant effect on the psychological well-being and weight management (Eisazadeh et al., 2022). Ngan, Chong, Loo, and Chien (2023) furthered on this by comparing the results of an effectiveness test of acceptance-based diabetes education program, which helped to decrease diabetes distress and foster more effective self-care behavior. The collection of studies combined contributes to the argument of implementing mindfulness-informed and ACT-based intervention into regular diabetes care.

Future Direction

Future studies are needed to conduct large-scale randomised controlled trial studies of mindfulness-informed intervention versus standard diabetes education, and to examine the sustainability of the effect. More attention is to be paid to the cultural adaptations of strategies and implementation in the form of digital delivery to guarantee its availability and reach.

Limitations

Research in this area is hampered by small sample sizes, short follow-ups and variation in protocols across intervention studies. It is not clear what cultural factors, or how patient compliance can be addressed and incorporated into established healthcare systems, something that can limit its applicability.

Conclusion

Meditation-based mindfulness techniques, especially ACT, are proven to be beneficial in lowering distress, self-efficacy, and glycemic status in patients with type-2 diabetes. Once incorporated into comprehensive diabetes care, whether in clinical practice or in the digital space, the methods in question will enhance both the mental and bodily well-being, eventually contributing to the sustainable self-management and enhance the quality of life.

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