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The Role of Coping Strategies in Overcoming Goal-related Obstacles in Patients with Diabetes: An Exploratory Study

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Abstract:

Introduction: Diabetes represents a potential chronic source of obstacles that interfere with the achievement of goals in the areas of weight maintenance, diet, glycemia, work, exercise, and overall quality of life. The aim of this study was to investigate how patients with type I and II diabetes manage such obstacles and what role their coping strategies play in relation to action crisis.

Methods: In a cross-sectional design, 70 patients completed a questionnaire measuring diabetes-interfered goals, goal progression, frequency and intensity of obstacles, the Action Crisis Scale, the Brief COPE Inventory, self-efficacy, and negative emotions.

Results: The sample showed higher mean action crisis scores (M = 3.78) than healthy populations in other research. Problem-focused strategies (active problem solving, planning, seeking support) were the most used, followed by emotional strategies (emotional support, acceptance), while dysfunctional strategies (alcohol/substance use, behavioral escape) were used the least.

Discussion: Obstacle frequency was not directly related to action crisis but was correlated with negative emotions ($r = 0.47$, $p < 0.001$). In turn, negative emotions were related to obstacle frequency ($r = 0.39$, $p < 0.01$), suggesting the potential for negative emotions to mediate the relationship between action crisis and obstacle frequency. Dysfunctional coping strategies also showed a positive relationship with action crisis ($r = 0.46$, $p < 0.001$).

Conclusion: Interventions for patients with diabetes should (a) reduce the frequency of goal obstacles, (b) train negative emotion regulation, (c) maintain and celebrate goal progress to increase goal self-efficacy, and (d) not only reinforce adaptive coping strategies but, more importantly, suppress dysfunctional strategies.

Keywords: Diabetes mellitus, Goal-related stress, Action crisis, Coping strategies, Negative emotions, Treatment plan.

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1. INTRODUCTION

Despite setting goals, people are not always successful in achieving them. There are several variables that may inhibit this, such as goal obstacles. These can interfere with the process of goal self-regulation and lead to a person's failure in achieving that goal. Marguc, Förster, and Van Kleef [1], have defined goal obstacles as certain interfering forces that can inhibit a person from achieving a goal. These obstacles can be represented by situational, social, physical, or mental phenomena [2, 3]. An action crisis is defined as a critical phase in goal pursuit when the goal appears difficult to reach or unattainable due to obstacles to achieving it [4]. In this case, a person experiences a significant intrapsychic conflict in deciding whether to persist in attempting to reach the goal or disengage from the path leading towards it [4]. There is also the possibility of changing the goal into a more realistic and achievable form by redefining it (goal re-engagement strategy) [5]. The goal re-engagement and goal disengagement strategies represent the process of goal revision, otherwise known as goal adjustment strategies [6]. The link between action crises and goal adjustment strategies has been well-researched in the literature [5-9]. In this case, coping strategies can be helpful in bringing a new perspective. This is based on the theoretical background that describes action crises as difficult and stressful situations. However, the role of coping strategies in the process of overcoming goal-related obstacles has not been well-explored, which creates a unique research gap to explore that drove the focus of our study. Brandstätter stated that problem-solving and active coping strategies enable an individual to overcome obstacles when pursuing personal goals, while planning strategies help an individual to transition more effectively between global and local perceptions of the goal-related problem [10, 11]. Gollwitzer and Oettingen noted that a person activates cost-benefit thinking during an action crisis while considering ways to cope with and solve the problem [12, 13]. The nature of diabetes involves a frequent source of stress and goal-related obstacles, which, together with the theory of coping strategies, creates a complex network of unexplored interactions and effects.

Detailed research on the psychological background of patients with type 1 diabetes mellitus (T1DM) and type 2 diabetes mellitus (T2DM) has contributed to the narrative that patients experience a variety of psychological difficulties and barriers to disease management that can affect their overall well-being. Patients with type 1 diabetes mellitus experience the impact of the disease on their psychological functioning throughout their lives. Patients with T1DM may face difficulties in their psychosocial development, school environment, work life, relationships, and parenting [14-16]. It has been found that a significant proportion of adults with type 1 diabetes experience diabetes-related stress and coping difficulties. Living with type 1 diabetes mellitus can manifest into mild cognitive decline and affective disturbances, such as depression or anxiety [14, 17]. Similarly, approximately one-third of type 2 diabetes mellitus patients experience anxiety and depression [18]. In this case, the mentioned affective disorders are associated with poorer glycaemic control and increased risk of health complications (*e.g.*, coronary heart disease) [19-21]. T2DM is equally associated with cognitive deficits (impaired executive function, attention, and working memory) that increase the risk of dementia [18].

Diabetic stress and the presence of intermediate-level goal obstacles occur in up to 45% of adults with type 2 diabetes [22]. These circumstances influence the subsequent management and compensation of diabetes [23]. At the same time, high stress in diabetic patients is associated with reduced emotional health [24], physical health [25], and quality of life. High rates of experiencing anxiety, depression, and negative emotions create a significant barrier to adherence to treatment regimens [26]. Another common barrier is adherence to a diet due to financial burdens and limitations in food choices [27]. Other barriers include medication costs, difficulty remembering doses [28], fatigue, pain, and other comorbidities [29]. Persistent difficulties in overcoming barriers can lead to an action crisis [30, 31], making it difficult for patients to adhere to their treatment plans.

Thus, it can be concluded that despite different psychological backgrounds, patients with T1DM or T2DM experience significant emotional distress associated with the characteristics of the disease [32]. Therefore, it can be assumed that diabetes is a natural source of stress that can lead to obstacles and disruption of goal-oriented behaviour, which in certain situations escalates into an action crisis. This study introduces and explores the idea that living with diabetes may act as a lifelong trigger of action crisis, particularly when patients continuously face obstacles to goal pursuit. To our knowledge, prior research has not leveraged this theoretical framework, making this insight a unique contribution that sets this research apart from existing literature. However, this distress can be alleviated with the right coping strategies. Similar to T1DM, adaptive coping strategies play an important role in T2DM and are associated with better glycaemic outcomes, whereas maladaptive strategies may exacerbate psychological distress [33-35]. Although many studies have examined the effects of coping strategies on stress in various populations, the role of coping in overcoming the action crisis caused by diabetes through the reduction of barriers and related stress represents a significant research gap [36]. The objective of the study is, therefore, to focus on understanding the psychological processes involved in how patients with diabetes cope with action crises and to examine the role of coping mechanisms in this process. We argue that addressing these challenges is crucial for developing interventions that target emotional and cognitive difficulties, ultimately promoting better disease management and quality of life.

2. METHODS

2.1. Study Design

The aim of the study is to determine what goals are most commonly disrupted by the disease and to explore the complex mechanisms through which patients with

diabetes mellitus cope with an action crisis. Particular attention is paid to identifying and analysing the coping strategies that patients use in response to the action crisis state, specifically comparing the use of strategies in action crisis. The intention is also to elucidate the hypothesized relationship between the intensity of the experienced action crisis and the activation of specific coping strategies. Given the nature of the research question, the study employs an exploratory cross-sectional design with a quantitative methodology.

2.2. Participants and Procedures

According to the established factors, predicted effect size (medium and large effects), test power (minimum of 0.80), and alpha (0.05), the minimum recommended sample size of 54.31 patients was calculated using Web Power Statistical Power online analysis [37]. Due to the specific inclusion criterion of the sample (patients with chronic diabetes mellitus type I and II) and the application function of this study (the intention to apply the results to patients with diabetes mellitus regardless of the type of disease), a minimum sample size of 50 patients was assumed. Exclusion Criteria included individuals younger than 18 years of age were not included, in order to ensure that all participants could provide informed consent independently without requiring approval from a legal guardian. Participants without a confirmed diagnosis of diabetes mellitus were excluded. Individuals who did not provide informed consent to participate were not considered eligible. Data were collected throughout 2023, and the current analysis was executed in response to evolving theoretical debates and research priorities related to the study topic. Nonetheless, the research results remain valuable, given the rarity of the sample and the relative stability of the field. The study was exploratory in nature without manipulation or intervention. Sampling method was conducted through a questionnaire administered online through convenience sampling (*via* social media and diabetes social groups). Due to the exploratory nature of the study, no statistical weighting was used in the analysis. Therefore, the results may not be fully generalizable to the broader population, and the conclusions are likely to be sensitive to interpretation. A total of 70 patients (37 women, 53%) with chronic diabetes mellitus (type I and II) participated in the study. The mean age was M = 49.84 (SD = 17.31). The representation of patients by type of diabetes was almost equal (51% type 1 and 49% type 2). The mean number of years since being diagnosed with diabetes was 13.9 (SD = 11.5). Of all patients, 36% reported a worsening of their condition in the last six months.

2.3. Measurements and Ethical Considerations

In accordance with the ethical principles outlined in APA guidelines in accordance with the Declaration of Helsinki, patients provided informed consent and consent to data processing prior to the administration of the questionnaire. The methods applied were translated and validated through a formal process of translation and cultural adaptation.

2.3.1. Demographics

The basic demographic data included age and gender. To assess the patients' disease more objectively, the duration of the disease (in years), the time of the last deterioration of health status (open question), and the type of disease (type I or type II diabetes mellitus) were monitored.

2.3.2. Question on the Goal

The patients were asked about a personal, specific goal that is hindered by their diabetes (type I or type II) as follows:

"A goal represents something we are trying to achieve. Something we are striving for. Think about one of your goals that you have been trying to achieve for a long time (at least a month), but that achievement is hindered by a diagnosis of diabetes mellitus" [38].

Follow-up questions were related to the above goal.

2.3.3. Goal Progress

The patients were asked to rate their progress toward achieving their goal. This used three items from the goal progress scale (*e.g.,"I have made a lot of progress towards this goal"),* which were rated on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree" [39]. The mean of all three items was used as an indicator of overall goal achievement. The Cronbach's alpha for the whole scale was $\alpha = 0.90$. Goal progress was also measured using subjective percentages of perceived goal achievement (0-100%).

The Action Crisis Scale (ACRISS) has recently been adapted into Slovak [8, 40]. The original scale uses six items and a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) to capture action crisis as a summary score. However, the five-point Likert scale was modified to a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree) to align with the instruments used in the current study (*e.g., "I have doubts whether I should continue striving for my goal or disengage from my goal*"). The Cronbach's alpha for the whole scale was $\alpha = 0.74$.

2.3.4. Obstacles

The obstacle was represented by having diabetes mellitus (type I and II) and the subjectively perceived limitations it brings in the process of achieving personal goals as:

"*Obstacles are a natural part of the goal attainment process. Please indicate what, in relation to your diabetes, prevents you from achieving your stated goal*".

This study also examined the intensity and frequency of obstacles by asking participants two questions using Likert scales:

"In your opinion, how intensely does this obstacle prevent you from achieving your stated goal?" (1 not at all - 7 hinders me a lot) and *"How often do you think you have to overcome this obstacle to achieve the stated goal?"* (1 never - 7 always when I try to achieve the goal).

Negative emotions associated with the goal:

To verify that the patient was indeed experiencing an action crisis and stress, two items recorded the patient's negative emotions associated with the goal on a 7-point scale (*"When I think about this goal, I feel tension"; " Pursuing this goal stresses me out"*) [41]. The Cronbach's alpha for this scale was α = 0.87.

2.3.5. Goal Self-efficacy

Goal self-efficacy was measured using three items that assessed a patient's belief in their ability to achieve a goal [42]. The Cronbach´s alpha for the whole scale was α = 0.84.

2.3.6. Goal Self-efficacy and Coping (Brief Cope Scale)

The questionnaire contains 14 2-item scales measuring 14 coping responses. These include adaptive and potentially problematic responses (acceptance, active coping, positive re-framing, planning, use of instrumental support, use of emotional support, behavioral disengagement, self-distraction, self-blame, humour, denial, religion, venting, and substance use) [43]. Carver [43] categorized active coping, instrumental support, and planning strategies as problem-focused, while emotionally focused strategies consist of acceptance, emotional social support, humor, positive reframing, and religion. Behavioral disengagement, denial, self-distraction, self-blame, substance use, and venting emotions were considered dysfunctional coping strategies. The patients were asked to rate the extent to which they use each of the coping strategies to manage stressful situations associated with diabetes. This was rated on a 5-point Likert scale from 1 (not at all) to 5 (usually). The Cronbach´s alpha was α = 0.76 for problem-focused coping, α = 0.73 for emotion-focused coping, and α = 0.71 for dysfunctional coping [43].

2.4. Statistical Analysis

After examining the reliability of the scales (Cronbach's alpha), a descriptive analysis of the data, demographic information, and potential covariates for this study was conducted. The necessary conditions for the analysis were fulfilled. To verify the use of coping strategies, they were validated through difference statistics, specifically repeated measures ANOVA (analysis of variance) and pairwise comparisons with Bonferroni correction. Categorization of diabetes-impaired goals and coping strategies was conducted through content analysis. A Pearson correlation analysis was performed to verify the underlying relationships between the variables.

3. RESULTS

3.1. Content Analysis of Goals Hindered by Diabetes

Table 1 presents goals hindered by diabetes. The most frequently reported interfered goals by diabetes were those related to weight control (27.14%). The second most represented category was meals (18.57%), which is closely related to the above category and also to the fourth most frequently mentioned category, glycemia (12.86%). Work goal (15.71%) was the third most represented category of goals hindered by diabetes. The full life category was the least represented category of goals interfered with by diabetes (7.14%).

3.2. Descriptive Statistics of Study Variables, Coping Strategies, and ANOVA Results

The descriptive data of the measured variables are presented in Table 2. The frequency and intensity of interference were quite high in the sample. Action crisis reached an average level (M = 3.78). After the conditions required for the analysis were met, a repeated measures ANOVA (analysis of variance) demonstrated a statistically significant difference in the use of coping strategies ($F(69, 138) = 43.8$, $p < 0.001$). Pairwise comparisons with the Bonferroni correction demonstrated a statistically significant difference in the use of problem-focused and emotion-focused coping strategies ($t(69) = 5.90$, $p < 0.001$). There was also a difference in the use of coping strategies between dysfunctional coping and problem-focused coping ($t(69) = -11.92$, $p < 0.001$). There was an equally significant difference in the use of emotion-focused coping and dysfunctional emotion-focused coping strategies ($t(69) = 6.23$, $p < 0.001$).

Table 1. Categorization of goals hindered by diabetes.

Category	Examples
Weight control (27.14%)	Lose weight after childbirth Increase in body weight
Meals (18.57%)	Limit sweets Stick to a stricter diet
Work goals (15.71%)	Get back to work Performing physically demanding work
Glycaemia (12.86%)	Balanced glycaemia Achieving TIR glycaemias of 95%
The full life (7.14%)	Better functioning in life A fuller life

Table 2. Means, standard deviations, and indicators of normality for all variables.

Variables	M	SD	Skew.	Kurt.
Progress	2.98	1.48	0.77	0.21
Progress in %	34.37	27.63	0.60	-0.61
Action crisis	3.78	1.29	0.53	-0.20
Intensity of the obstacle	5.46	1.70	-1.02	0.13
Frequency of the obstacle	5.06	1.60	-0.35	-0.67
Negative emotions	4.49	2.03	-0.38	-1.19
Self-efficacy	4.30	1.71	-0.19	-1.02
Problem-focused coping	3.67	0.77	-0.69	1.052
Emotion-focused coping	3.04	0.73	0.39	-0.51
Dysfunctional coping	2.42	0.62	0.23	-0.42

Table 3 presents examples of the five items with the highest and lowest means in terms of managing diabetes. The highest-scoring items represent the problem-focused and emotion-focused categories of coping. These items describe emotional support, instrumental support, active coping, planning, and acceptance. While the items with the lowest means belong to the category of dysfunctional coping (mainly associated with alcohol and drug use and behavioral disengagement), two items are part of emotion-focused coping. These were items related to religion.

Table 3. Selected coping items with the highest and lowest mean scores.

Items with the highest mean	M (SD)
I received emotional support from other people	3.93 (1.15)
I tried to get advice or help from other people about what to do	3.81 (1.20)
I have done things to try to improve the situation	3.81 (0.92)
I was trying to find a strategy for what to do	3.74 (1.10)
I've learned to live with it	3.74 (1.30)
Items with the lowest mean	*M (SD)*
I used alcohol or other drugs to make me feel better	1.46 (1.13)
I used alcohol or other drugs to get me through it better	1.49 (1.03)
I have tried to find relief in religion or spiritual thoughts	2.16 (1.50)
I've stopped trying to fight it	2.27 (1.30)
I was praying	2.29 (1.62)

3.3. Correlation Analyses of Study Variables

The results of the Pearson correlation analyses are presented in Tables 4 and 5. The correlation analyses did not support the predicted positive relationship between action crisis, intensity, and frequency of obstacles. Goal-related negative emotions were moderately positively related to action crisis (r = 0.47, $p < 0.001$). Goal progress (measured by both percentage and the 3-item scale) was moderately negatively correlated with action crisis (r = -0.39, $p < 0.01$; r = -0.25, $p < 0.05$). A moderately positive relationship between action crisis and patients' self-efficacy was also found (r = 0.42, $p <0.001$). Conversely, goal self-efficacy was strongly correlated with goal progress (r = 0.58, $p < 0.001$). A moderately positive relationship was also found between negative emotions and the frequency of obstacles (r = 0.39, $p < 0.01$).

The relationships between action crisis and the three types of coping are presented in Table 5. It was found that only dysfunctional coping was moderately positively related to action crisis (r = 0.46, $p < 0.001$). The results confirmed a weak positive non-significant relationship between problem-focused and emotion-focused coping strategies and action crisis. A significant positive relationship emerged between problem-focused coping and emotion-focused coping (r = 0.32, $p < 0.01$) and dysfunctional coping and emotion-focused coping (r = 0.27, $p < 0.05$).

4. DISCUSSION

Encountering an obstacle in achieving our goals can lead to difficulty in reaching the goal, negative emotions, or even freezing or dropping the goal. Diabetics, whether with lifelong type I or long-term type II diabetes, face various obstacles, and their ability to cope with these challenges directly impacts their quality of life and health outcomes. It was hypothesized that diabetes is a natural source of goal-related stress and obstacles, which can therefore lead to increasing action crisis and activate coping. The aim of this study was to examine how patients with diabetes mellitus cope with goal-related obstacles and the role coping strategies play in relation to action crisis. Research findings in this area may lead to more targeted and effective interventions that foster sustainable coping and long-term management of diabetes. The unique contribution of this study also lies in the integration of goal regulation theory with coping strategies in the context of chronic diabetes. By conceptualizing diabetes as a persistent stressor that can trigger an action crisis in goal attainment, this study offers a fresh perspective on how patients may consciously or unconsciously perceive their disease.

The stated goals that were hindered by diabetes were to some extent interrelated. Diabetes interfered with and caused difficulties in trying to lose or gain weight. The disease interfered with efforts at free eating by requiring strict dieting and sugar reduction. Diabetes also requires proper management of glycaemic control, which contrasts with the free intake of food and not manipulating glycemia. Diabetes also interfered with goals in the areas of work, exercise, and a fuller and more rewarding life. Such diabetes-interfered goals are consistent with other studies [44-47] and point to the fact that diabetes interferes with patients' complex functioning.

Table 4. Action crisis and its correlates.

-	Progress	Progress in %	Obstacle Intensity	Obstacle Frequency	Negative Emotions	Self-efficacy
Action crisis	-0.39**	-0.25*	0.02	0.18	0.47***	-0.42***
Progress	-	0.52***	0.16	0.03	-0.16	0.58***
Progress in %	-	-	0.003	-0.05	-0.06	0.17
Obstacle intensity	-	-	-	0.64***	0.16	0.03
Obstacle frequency	-	-	-	-	0.39**	0.07
Negative emotions	-	-	-	-	-	-0.05

Note: *$p < 0.05$, **$p <0.01$, ***$p <0.001$.

Table 5. Correlations of action crisis and coping strategies.

-	Problem-focused Coping	Emotion-focused Coping	Dysfunctional-focused Coping
Action crisis	0.23	0.19	0.46***
Problem-focused coping	-	0.32**	0.23
Emotion-focused coping	-	-	0.27*

Note: *p <0 .05, **p <0.01, ***p <0.001.

Despite the physiological heterogeneity of type 1 and type 2 diabetes, patients from both groups demonstrated homogeneity in that they experience similar disease-related difficulties when trying to achieve health, work, or personal goals. It was also found that patients with diabetes perceived quite intense and frequent diabetes-related obstacles in achieving their goals. In comparison to studies with a general sample, the values of action crisis in diabetics are higher (*e.g.* [9], M = 2.49 [8], M = 3.6). This may reflect the chronicity of diabetes, the difference in goals, as well as the formulated obstacles.

The analysis showed that patients most frequently used problem-focused coping strategies, followed by emotion-focused coping strategies, while dysfunctional coping strategies were used least frequently. This is indicative of mainly using active, problem-focused coping strategies. The highest-scoring items were emotional support seeking, instrumental social support, active coping, planning, and acceptance of stress. The need for emotional and social support, particularly among individuals with diabetes, is consistent with the theory that an action crisis may influence the consequences or impact of support on goal attainment. The negative consequences of social support (*e.g.*, anxiety and depressive symptoms) may be elicited when social expectations are high in achieving unachievable goals [48]. The coping items with the lowest scores were categorized under dysfunctional coping strategies. This was in the form of alcohol and substance use and behavioural disengagement. The next lowest scoring coping styles (emotion-focused) were related to religion. According to previous literature [49-52], the use of spirituality and faith-focused interventions has a positive relationship with diabetes management and a positive impact on the effectiveness of diabetes management. This discrepancy may have been due to the sociodemographic characteristics of the sample or may indicate a more recent trend in which more traditional spiritual or religious forms of coping are being replaced by newer, more responsive forms, such as coaching, mentoring, and others, in which problem-focused coping strategies are manifested [53]. As reported, the most common forms of coping were problem-focused coping, where the patients managed the psychological strain resulting from an action crisis either through rationalization and explanation, or in the context of planning and prevention by trying various new conveniences and technologies for chronic disease management, which is consistent with the coping theory of diabetic patients [54-57]. At the same time, the process of problem-focused coping represents a mindset for the adaptive function of an action crisis, whereby one is able to let go of unattainable goals or goals that require demands far greater than their potential benefits [8].

In the first series of correlations, the relationship between action crisis and obstacle frequency or obstacle intensity was not demonstrated in the present study. This contrasts with the literature on obstacles as predictors of action crisis [58] and thus represents an area for further research. While previous studies have supported the association between action crisis and obstacle intensity, this relationship was not found in diabetic patients. One possible reason for this is the heterogeneous sample, which includes patients with recent deterioration in diabetes (obstacles were represented in this study by the difficulties associated with diagnosis). However, self-efficacy and negative emotions persist in the relationship with action crisis. Another significant correlation we identified was between obstacle frequency and negative emotions. Also, previous literature has demonstrated that diabetics may perceive diabetes-related daily self-management as stressful, representing a burden or obstacle [59-62]. Based on this, we theorize about the mediating role of negative emotions, which could partially mediate the relationship between obstacle frequency and action crisis. Specifically, we suggest that greater obstacle frequency may increase negative emotions, ultimately leading to an action crisis. However, the sample size does not allow us to examine this relationship; therefore, we describe this research gap and recommend that it should be investigated in patients with diabetes. We also recommend reducing the frequency of obstacles when working with diabetic patients, as they could potentially lead to experiencing negative emotions that could ultimately manifest into an action crisis [63]. If the negative emotions have already arisen (even under the influence of obstacle frequency), we recommend focusing on reducing these experiences through cognitive reappraisal strategies [64], mindfulness [65, 66], and other emotion regulation strategies.

Another interesting aspect is the correlation between goal progress and the action crisis. The relationship between the two is not entirely unambiguous and can be explained differently depending on the circumstances. In general, reduced goal progression can lead to the emergence of an action crisis [7], and a persistent action crisis can reduce or even stop progression altogether [2, 67, 68]. In this case, we recommend that when designing and implementing interventions for patients with diabetes, it is appropriate to maintain momentum during goal progression, track progress, celebrate milestones achieved, and remind patients with diabetes of their progress toward their goal, which can ultimately lead to a reduction in experiencing an action crisis and enhancing goal self-efficacy [69-71], which based on our results, also leads to a reduction in experiencing an action crisis.

In the correlational analysis of action crisis and coping strategies, the only relatively strong positive relationship was between dysfunctional coping and action crisis; however, the relationship between action crisis and dysfunctional coping is multifaceted. Based on the results, we can conclude that an action crisis associated with obstacles and negative emotions may trigger dysfunctional coping strategies, or the more diabetic patients use dysfunctional, maladaptive strategies to overcome obstacles in the process of goal attainment, the more often their efforts lead to an action crisis. Both finding are also consistent with current knowledge where an action crisis can lead to dysfunctional strategies, particularly in individuals with limited goal reengagement capacities [7] or dysfunctional strategies, such as substance abuse or lack of regulatory flexibility, or conversely, failure to use positive psychological resources, such as hope, self-efficacy, resilience and optimism, can lead to increased stress responsiveness and reduced ability to mobilize adaptive processes, which may increase the likelihood of experiencing an action crisis [72, 73]. Therefore, when designing interventions for patients with diabetes, we recommend focusing not only on strengthening adaptive coping strategies, such as problem-focused coping or emotion-focused coping, but also on reducing the frequency of using maladaptive, dysfunctional-focused coping strategies. The nature of the relationship between dysfunctional coping and the other categories of coping was equally surprising, with weak but positive associations between dysfunctional-focused coping and emotion-focused coping. García *et al*. [56] suggested that the relativity of assessing whether coping strategies are functional or dysfunctional depends on several factors, including context. While dysfunctional coping is the least preferred of all the coping categories, it includes the strategy of rumination. Rumination often lies on the border between automatic and controlled coping, highlighting the fine distinction between maladaptive and adaptive coping [74-76]. Thus, a specific strategy may be adaptive under some conditions and maladaptive under others. Unlike previous studies that have examined coping, goal attainment, and specific conditions separately, this study explores their dynamic interaction and provides initial implications for practice and a more comprehensive view of goal attainment throughout chronic illness.

5. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The practical limitations of the study include the greatest limitation of this study, the sample size, which may have influenced the power and magnitude of the effects of the quantitative analyses. However, the specific nature of the study population (the availability of diabetic patients approached) made it difficult to increase the number of respondents. Another practical limitation of the study is the use of convenience sampling *via* social media and diabetes-related groups, which may lead to sample bias by over-representing participants who are more engaged in the digital environment or more willing to share personal experiences. Given the exploratory nature of research focused on coping strategies in a specific patient population, this method provided an effective approach to a relevant sample. To mitigate bias, invitations were posted in multiple diverse groups. Although not entirely generalized, convenience sampling remains a pragmatic and common approach for hard-to-reach populations. However, future studies may consider more representative sampling to confirm and extend our findings. Another practical limitation of the study is the reliance on self-reports for data collection on patient diagnosis and condition, which were not clinically verified through medical records. This approach was necessary to comply with ethical standards, particularly regarding patient anonymity. Although this may have led to potential inaccuracies, the decision to prioritize ethical integrity was deliberate and consistent with best practices in research involving sensitive health information.

The theoretical limitations of the study include the risk of subjective researcher bias, which may have been introduced during the content analysis process. Despite efforts to maintain objectivity, the coding and categorization of open-ended responses were conducted by one researcher. Nonetheless, we recognize that the content analysis and the individuals' responses were not comprehensive enough to eliminate the subjective bias of the researcher, which could have significantly affected the study's results and conclusions. Another theoretical limitation of the study may be its relatively narrow theoretical framework, which may have overlooked certain individual or cultural specifics, thereby limiting the full applicability of the findings. Further research could overcome this limitation by implementing more advanced analytical methods, such as structural equation modeling, to better capture complex relationships.

Despite its limitations, the study offers valuable insights and outlines potential directions for future research. Given its exploratory nature, future studies could build on our findings using more rigorous and diverse research designs. Longitudinal designs, in particular, may offer a deeper understanding of the dynamic interaction between goal regulation and coping strategies over time, especially in relation to diabetes self-management. We are also personally interested in experimental research design, which would enable stronger causal conclusions, and we strongly encourage others to adopt the same approach. Future research could benefit from more representative sampling methods to improve generalizability, as well as from incorporating advanced qualitative methods (*e.g.*, interviews or focus groups) to capture subjective and contextual nuances of health goal attainment. Building on more robust evidence, future studies should move beyond clinical conventions and adopt interdisciplinary perspectives that integrate emotional regulation, self-efficacy, and aspects of the self. There is potential in drawing from neuropsychology and psycholinguistics, which offer promising possibilities for expanding the conceptual framework and deepening contextual understanding.

CONCLUSION

Although the size of the research sample and the cross-sectional study design, the biggest limitations of the study, did not allow for more complex analyses, the research

fulfilled its exploratory purpose. Diabetes management brings with it many obstacles, but patients with diabetes perceive diabetes itself as an obstacle in their efforts to achieve their health, personal, or professional goals, with action crisis values being higher than in the general population. Despite the heterogeneity of type 1 and type 2 diabetes, both groups experienced similar problems in achieving goals. In terms of coping strategies, patients managing diabetes employed adaptive strategies, such as problem-focused coping or emotion-focused coping (seeking emotional support, advice, or help to improve the situation), while maladaptive, dysfunctional forms and religious/spiritual approaches were used the least. Unexpectedly, there was no direct relationship between the frequency or intensity of obstacles and action crisis, although obstacles increased negative emotions, which are strong predictors of action crisis. However, an interesting relationship between action crisis and dysfunctional coping was demonstrated. In conclusion, when working with diabetic patients, we recommend that interventions should focus on reducing the frequency of obstacles, training in the management of negative emotions, providing support, maintaining and appreciating progress, and not only strengthening adaptive strategies but especially reducing dysfunctional strategies in patients with diabetes. We believe that by implementing these suggestions, psychologists and health professionals can purposefully promote sustainable diabetes management, improve patients' quality of life, and prevent the negative psychological consequences of diabetes.

AUTHORS' CONTRIBUTIONS

The authors confirm contribution to the paper as follows: M.H.: Study conception and design; N.S.: Data collection; A.P.: Analysis and interpretation of results; A.P.: Draft manuscript. All authors reviewed the results and approved the final version of the manuscript.

LIST OF ABBREVIATIONS

T1DM	=	Type 1 Diabetes mellitus
T2DM	=	Type 2 Diabetes mellitus
ANOVA	=	Analysis of Variance

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study did not require approval from an institutional ethics committee, as it involved no experimental intervention, manipulation, or collection of personally identifiable or sensitive data. The research was conducted in accordance with the ethical principles outlined in the APA ethical guidelines.

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committees and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

All participants received a written informed consent form outlining the study's objectives, procedures, and data confidentiality. The form also specified participants' rights, including the voluntary nature of participation and the right to withdraw from the study at any time without any negative consequences. Participants provided consent for the anonymous use and publication of their data.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of the article will be available from the corresponding author [A.P] upon reasonable request.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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