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ORIGINAL RESEARCH

Patient Empowerment in Individuals with Type 2 Diabetes Mellitus: A Cross-Sectional Study

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Abstract

Objective and Aim

Patient empowerment has emerged as a cornerstone of chronic disease management, particularly in type 2 diabetes mellitus (T2DM), where long-term self-management is essential. Despite growing interest, uncertainties remain regarding the determinants of empowerment and its relationship with metabolic outcomes. To evaluate patient empowerment levels in individuals with T2DM and to identify sociodemographic, clinical, and behavioral factors associated with empowerment.

Materials and Methods

This descriptive cross-sectional study included 125 adults with T2DM attending the Endocrinology Outpatient Clinic of Çukurova University Faculty of Medicine. Data were collected through face-to-face interviews using a sociodemographic questionnaire and the Diabetes Empowerment Scale (DES). Clinical and laboratory parameters were obtained from medical records. Statistical analyses were performed using SPSS v20.0.

Results

The mean age of participants was 55.1 ± 9.7 years, and 75.2% were female. The mean total DES score was 82.4 ± 11.4, indicating a moderate-to-high level of empowerment. Lower education level, older age, and suboptimal adherence to lifestyle recommendations were associated with lower empowerment scores. No significant correlation was found between DES scores and glycemic or lipid parameters, including HbA1c.

Conclusion

Patient empowerment among individuals with T2DM was moderate to high but varied according to educational and sociodemographic characteristics. Integrating empowerment-based strategies into family medicine and primary care, with attention to cultural context, may enhance self-management capacities and overall diabetes care.

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1. Introduction

Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder requiring lifelong medical care and continuous patient engagement in self-management behaviors. The increasing global prevalence of diabetes represents a major public health challenge, accompanied by rising morbidity, mortality, and healthcare costs. In this context, patient empowerment has gained international recognition as a fundamental component of high-quality diabetes care.

Patient empowerment is broadly defined as a process through which individuals gain greater control over decisions and actions affecting their health (1,2). The World Health Organization describes empowerment as enabling people to increase control over their health-related decisions and actions, while the International Diabetes Federation emphasizes learning to cope with and manage diabetes as an empowered process. These definitions highlight empowerment as both a dynamic process and a measurable outcome.

Traditional biomedical models, largely shaped by the management of acute infectious diseases, are increasingly inadequate for chronic conditions such as diabetes. Consequently, healthcare paradigms have shifted toward biopsychosocial and patient-centered approaches, in which individuals are regarded as active partners rather than passive recipients of care. Empowerment-based care aligns closely with the principles of family medicine, emphasizing continuity, person-centeredness, and shared decision-making (11,23).

Several studies suggest that empowered patients demonstrate better self-care behaviors, higher self-efficacy, improved psychosocial well-being, and, in some cases, better metabolic outcomes (10,16,20). However, empirical findings remain inconsistent, particularly regarding the relationship between empowerment and glycemic control. Moreover, cultural, educational, and health system factors may influence empowerment levels and their effects.

The present study aimed to assess patient empowerment in individuals with T2DM and to examine its associations with sociodemographic characteristics, clinical features, and metabolic parameters.

Materials and Methods

This descriptive cross-sectional study was conducted at the Endocrinology Outpatient Clinic of Çukurova University Faculty of Medicine. A total of 125 patients diagnosed with T2DM for at least six months were included. Eligibility criteria were age ≥18 years, ability to communicate verbally, and provision of written informed consent. Patients with diagnosed depression or receiving antidepressant treatment were excluded. Data were collected through face-to-face interviews using a structured sociodemographic questionnaire and the Diabetes Empowerment Scale (DES). Clinical and laboratory data, including fasting plasma glucose, HbA1c, lipid profile, and renal function tests, were obtained from medical records.

Diabetes Empowerment Scale

The DES was originally developed by Anderson et al. to assess psychosocial self-efficacy in individuals with diabetes (1). The validated Turkish version includes 21 items across three subscales: (1) managing the psychosocial aspects of diabetes, (2) assessing dissatisfaction and readiness to change, and (3) setting and achieving diabetes-related goals. Higher scores indicate greater empowerment.

Statistical Analysis

Statistical analyses were performed using SPSS version 20.0. Descriptive statistics were

expressed as means ± standard deviations or frequencies and percentages. Correlations between DES scores and continuous variables were assessed using Pearson or Spearman correlation coefficients. A p-value <0.05 was considered statistically significant.

Results

A total of 125 individuals with type 2 diabetes mellitus were included in the analysis. The results are presented in a structured manner, combining detailed narrative explanations with tabulated data to allow comprehensive interpretation of the findings.

Sociodemographic Characteristics

The sociodemographic profile of the study population revealed that the mean age of participants was 55.1 ± 9.7 years, indicating a predominantly middle-aged cohort. Female participants constituted nearly three-quarters of the sample (75.2%), reflecting the gender distribution of patients attending outpatient diabetes clinics in the region. The majority of participants were married (81.6%), which may have implications for social support mechanisms in chronic disease management. Educational attainment was generally low, with more than half of the participants having completed only primary school or less (56.8%). This distribution highlights the importance of tailoring empowerment-based interventions to individuals with limited formal education (Table 1).

Table 1. Sociodemographic Characteristics of the Participants

Variable	n (%) / Mean ± SD
Age (years)	55.1 ± 9.7
Female sex	94 (75.2)
Married	102 (81.6)
Primary school or less	71 (56.8)
Secondary/high school	39 (31.2)
University education	15 (12.0)

Clinical and Diabetes-Related Characteristics

The mean duration of diabetes was 9.6 ± 8.0 years, demonstrating substantial heterogeneity in disease chronicity among participants. Most patients were classified as obese, with a mean body mass index of 31.4 ± 5.4 kg/m^2. Glycemic control was suboptimal overall, as reflected by a mean HbA1c level of 8.1 ± 1.7%. Regarding treatment modalities, oral antidiabetic drugs were the most frequently used therapy (59.2%), followed by combined insulin and oral regimens (26.4%). Notably, only a small proportion of participants (12.8%) reported having received structured diabetes education, underscoring a critical gap in comprehensive diabetes care delivery (Table 2).

Table 2. Clinical Characteristics and Diabetes-Related Data

Variable	Mean ± SD / n (%)
Duration of diabetes (years)	9.6 ± 8.0
Body mass index (kg/m^2)	31.4 ± 5.4
HbA1c (%)	8.1 ± 1.7
Oral antidiabetic drugs only	74 (59.2)
Insulin ± oral agents	33 (26.4)
Received diabetes education	16 (12.8)

Diabetes Empowerment Levels

Analysis of Diabetes Empowerment Scale (DES) scores demonstrated that the overall level of patient empowerment was moderate to high. The highest mean subscale score was observed in the domain of goal setting and achievement (34.4 ± 6.1), suggesting that many patients perceived themselves as capable of identifying and pursuing diabetes-related goals. Psychosocial management and readiness to change subscales yielded comparable mean scores (23.6 ± 3.8 and 24.4 ± 3.7, respectively). The mean total DES score was 82.4 ± 11.4, indicating a generally favorable empowerment profile within the study population (Table 3).

Associations Between Empowerment and Selected Variables

Correlation analyses revealed several noteworthy associations. Educational level

was positively correlated with total DES score, indicating higher empowerment among participants with greater educational attainment ($r = 0.34$, $p < 0.01$). Age demonstrated a weak but statistically significant negative correlation with the readiness-to-change subscale ($r = -0.21$, $p < 0.05$), suggesting that older patients may experience greater difficulty initiating behavioral changes. No statistically significant correlations were observed between total DES scores and metabolic parameters such as HbA1c or body mass index, emphasizing that empowerment may operate independently of short-term clinical outcomes (Table 4).

Table 3. Diabetes Empowerment Scale (DES) Scores

DES Domain	Mean ± SD
Psychosocial management	23.6 ± 3.8
Readiness to change	24.4 ± 3.7
Goal setting and achievement	34.4 ± 6.1
Total DES score	82.4 ± 11.4

Discussion

This study demonstrated that individuals with T2DM exhibited moderate-to-high levels of patient empowerment. Education level emerged as a key determinant, consistent with previous national and international studies. Limited participation in structured diabetes education programs may partly explain variations in empowerment levels.

Contrary to some reports, empowerment was not significantly associated with glycemic control or lipid parameters (6,18,24). This finding supports the view that empowerment primarily influences psychosocial and behavioral dimensions, while metabolic outcomes may be mediated by additional clinical and systemic factors.

The results underscore the strategic role of family medicine and primary care in fostering patient empowerment through longitudinal relationships, culturally sensitive communication, and multidisciplinary collaboration (11,21). Empowerment-oriented interventions should be tailored to patients' educational backgrounds and readiness for change.

Limitations

The cross-sectional design precludes causal inference, and the single-center setting may limit generalizability. Self-reported measures may also introduce response bias.

Conclusion

This study provides a comprehensive evaluation of patient empowerment among individuals with type 2 diabetes mellitus and highlights the multifaceted nature of empowerment within chronic disease management. The findings demonstrate that, while overall empowerment levels were moderate to high, significant disparities persist according to educational attainment and sociodemographic characteristics.

Table 4. Correlations Between DES Scores and Selected Variables

Variable	Correlation coefficient (r)	p-value
Age vs. readiness to change	−0.21	<0.05
Education level vs. total DES	0.34	<0.01
HbA1c vs. total DES	−0.08	>0.05
BMI vs. total DES	−0.11	>0.05

The absence of a direct association between empowerment scores and metabolic indicators such as HbA1c underscores the complexity of diabetes outcomes. Empowerment should not be interpreted solely as a predictor of short-term glycemic control but rather as a critical determinant of long-term self-management capacity, psychological resilience, and patient engagement. Behavioral change processes often require sustained support and may precede measurable clinical improvements.

From a primary care and family medicine

perspective, empowerment-oriented care represents a strategic investment in sustainable diabetes management. Continuous patient–physician relationships, shared decision-making, and culturally sensitive communication are essential components for fostering empowerment, particularly among patients with lower educational backgrounds.

The results also suggest an urgent need to strengthen structured diabetes education programs within primary care settings. Empowerment-based educational interventions, tailored to patients' readiness for change, may enhance adherence to lifestyle modifications and therapeutic regimens.

In conclusion, integrating patient empowerment into routine diabetes care should be regarded as a core quality indicator rather than an optional adjunct. Future longitudinal and interventional studies are warranted to clarify causal pathways between empowerment, self-care behaviors, and long-term clinical outcomes. Strengthening empowerment-focused strategies in family medicine has the potential to improve not only individual health outcomes but also the overall efficiency and equity of healthcare systems.

Conflict of interest

The authors declare no conflict of interest.

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