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Araştırma makalesi

Research article

Relationship Between Self-care Activities and Stigmatization in Patients with Type 2 Diabetes

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ABSTRACT

Aims: This study was performed to determine the relationship between diabetes self-care activities (SCA) and stigmatization of patients with Type 2 Diabetes Mellitus (T2DM).

Materials and Methods: This is a descriptive and correlational study. The data were collected using the Sociodemographic Information Form, Summary of Diabetes Self-Care Activities (SDSCA) Measure, and Type-2 Diabetes Stigma Assessment Scale (DSAS-2)

Results: Patients with T2DM experience moderate levels of stigmatization. They have a moderate level of self-care activities (SCA) in the Diet, Blood Glucose, and Foot care subscales and low levels of SCA in the Exercise subscale. A negative correlation exists between stigmatization and exercise, blood glucose, and foot care—which are subscales of the self-care activities scale ($p < 0.05$). A positive correlation exists between BMI (Body Mass Index) and stigmatization and a negative correlation between BMI and Diet, Blood Glucose, Foot care, and Exercise subscales ($p < 0.05$).

Conclusion: Within the scope of holistic care, determining psychosocial factors including stigmatization as well as physiological parameters is important in routine follow-up of patients. Preventing stigmatization will positively affect self-care activities and, consequently, disease management.

Keywords: Nursing, self -care, stigmatization, type 2 diabetes mellitus

ÖZ

Tip 2 Diyabetli Hastaların Kendini Damgalamaları ile Özbakım Aktiviteleri Arasındaki İlişki

Amaç: Bu çalışma, tip 2 Diyabetes Mellituslu (T2DM) hastaların diyabet öz bakım aktiviteleri ile damgalanmaları arasındaki ilişkiyi belirlemek amacıyla yapıldı.

Gereç ve Yöntem: Tanımlayıcı ve ilişkisel bir çalışmadır. Veriler Sosyodemografik Bilgi Formu, Diyabet Öz Bakım Faaliyetleri Anketi (SDSCA) ve Tip 2 Diyabet için Stigma Değerlendirme Ölçeği (DSAS-2) kullanılarak toplanmıştır.

Bulgular: T2DM'li hastalar orta düzeyde damgalanma yaşamaktadır. Diyet, Kan Şekeri ve Ayak Bakımı alt ölçeklerinde orta düzeyde öz bakım aktivitelerine (SCA) ve Egzersiz alt ölçeğinde düşük düzeyde SCA'ya sahiptirler. Damgalama ile öz bakım aktiviteleri ölçeğinin alt ölçekleri olan egzersiz, kan şekeri ve ayak bakımı arasında negatif korelasyon bulunmaktadır ($p < 0,05$). BKI (Beden Kitle İndeksi) ile damgalanma arasında pozitif, BKI ile Diyet, Kan Şekeri, Ayak Bakımı ve Egzersiz alt ölçekleri arasında ise negatif korelasyon vardır ($p < 0.05$).

Sonuç: Bütünsel bakım kapsamında hastaların rutin takibinde fizyolojik parametrelerin yanı sıra damgalanmayı da içeren psikososyal faktörlerin belirlenmesi önemlidir. Damgalanmanın önlenmesi öz bakım faaliyetlerini ve dolayısıyla hastalık yönetimini olumlu yönde etkileyecektir.

Anahtar Kelimeler: Damgalama, hemşirelik, özbakım, tip 2 diabetes mellitus

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INTRODUCTION

Diabetes Mellitus is characterized by hyperglycemia that occurs due to insulin deficiency or "insulin resistance" that develops against insulin action in peripheral tissues, affecting many organs and causing multisystemic involvement. Patients with Type 2 Diabetes Mellitus (T2DM) are proximately 90-95% of all diabetes cases (TEMD 2022). The International Diabetes Federation (IDF) reports that one in every 10 people worldwide has diabetes, and if this trend continues, 783 million individuals will be diagnosed with diabetes by 2045 (IDF 2021). 42% of the adult population in our country is diabetic or prediabetic (TEMD 2022). Although diabetes is a chronic disease the symptoms, treatment, and complications of T2DM may cause some psychological and social problems in individuals (Akyirem et al., 2022). Prejudices of society and attributing the disease only to reasons including inactivity, overeating, malnutrition, and obesity by ignoring genetic factors in the etiology of T2DM cause stigmatization of individuals (Gredig et al., 2017; Schabert et al., 2013). Diabetes-related stigma refers to the negative social attitudes and behaviors that may manifest as discrimination, exclusion, or internalized feelings of shame or guilt because of a person's T2DM status, disease characteristic, or disease management (Browne et al., 2013)

Individuals who experience stigmatization withdraw from social environments and experience problems in the diabetes management process including blood glucose irregularities and non-compliance with diet and exercise rules (Kato et al., 2016). Studies have reported that patients with T2DM experience stigmatization (Himmelstein ve Puhl 2021; Liu et al., 2017), and that stigmatization affects feelings of self-worth, attitudes toward social participation, and self-management (Kato et al., 2016). Self-stigmatization and self-care behavior significantly affect the quality of life in patients with diabetes (Cho et al., 2022). The fact that self-care behaviors improve the quality of life of patients with diabetes and are associated with managing of complications has been emphasized in the literature (Bonner et al., 2016).

Self-care is the actions people take for their care within environmental conditions (Orem 1985). SCA in T2DM comprises maintaining a healthy diet, performing regular physical activity, self-monitoring blood glucose, and regularly using of prescribed medications (Fransen et al., 2015). General SCA of patients with T2DM was reported to be inadequate and this increased diabetes-related complications (da Rocha et al., 2020). The main obstacles to self-care include financial limitations, physical limitations, social gatherings, liking to eat, forgetfulness, and injection phobia (Bukhsh et al., 2020). SCA in patients with T2DM affected adherence to the disease treatment (Krzemińska et al., 2021).

SCA of individuals with T2DM may be affected because of self-stigmatization. Therefore, within the scope of providing holistic care, nurses should aim to determine the levels of stigmatization and SCA in individuals with T2DM and take necessary measures.

Aim

This study was performed to determine diabetes SCA, stigmatization levels, and the relationship between SCA and stigmatization in T2DM patients.

Hypotheses/Study Questions

1) What is the level of stigmatization of individuals with T2DM? 2) What is the level of SCA in individuals with T2DM? 3) Is there a relationship between treatment characteristics, stigmatization and SCA of individuals with T2DM? and 4) Is there a relationship between sociodemographic characteristics of individuals with T2DM and stigmatization and SCA?

MATERIAL and METHODS

Study Design

This was a descriptive and correlational research.

Study Sample

Patients diagnosed with T2DM who applied to Endocrinology and Internal Medicine outpatient clinics at Necmettin Erbakan University Faculty of Medicine Hospital consisted of the population. To calculate the study's sample size, the study conducted by Kato et al. (2016)—who showed the presence of a significant relationship between SCA of patients with T2DM and stigmatization—was taken as a reference (Kato et al., 2016). The adjusted regression coefficient (R^2 = 0.26) and the partial regression coefficients for stigmatization and self-care (−0.23 and 0.19, respectively) given in the above-mentioned study were considered. The minimum sample size required to indicate a significant relationship between stigmatization and self-care at the level of effect size (f^2 = 0.097) was, therefore, calculated as 162 in the G*Power (3.1.9) program (α = 0.05 (two-way), 1 – β = (0.95). The study was completed with the participation of 165 patients.

Inclusion and Exclusion Criteria

Patients diagnosed with T2DM, aged 18–80 years, who were at least a primary school graduate, who had been receiving treatment for at least 6 months, who did not receive any psychiatric treatment, who were open to communication and cooperation, who were conscious and able to answer the questions and volunteered to participate were included in the study. Patients with a disease that may affect decision-making ability (dementia and psychological disorders, among others) and sensory losses such as vision and hearing were not included in the study.

Data Collection Tools

The data were collected using the Sociodemographic Information Form, Summary of Diabetes Self-Care Activities (SDSCA) Measure, and Type-2 Diabetes Stigma Assessment Scale (DSAS-2).

Sociodemographic information form: This form comprised 9 questions. The researchers prepared it to determine sociodemographic and disease characteristics of the participants(Bukhsh et al., 2020; Krzemińska et al., 2021).

Summary of Diabetes Self-Care Activities (SDSCA) Measure: The measure was developed by Toobert and Glasgow (1994) and revised by Toobert et al. (Toobert et al., 1994; Toobert et al., 2000). The Turkish validity and reliability study of this measure was performed by Coşansu Kuzu (2009) by adding smoking and foot care items. The SDSCA consists of 11 items examining diabetes self-care activities (diet, blood glucose testing, exercise, foot care, and smoking) for days 0–7. A higher scale score indicated that the individual performed more self-care activities (Coşansu Kuzu, 2009).

Type-2 Diabetes Stigma Assessment Scale (DSAS_2)

This scale was developed by Browne et al. to measure the stigmatization of patients with T2DM (Browne et al., 2016). The validity and reliability study of the scale was performed by İnkaya and Karadağ (İnkaya ve Karadağ 2021). It consists of 19 items; furthermore, it comprises 3 subscales including "Threated Differently", "Blame and Judgement" and "Self-stigma". The total scale stigma scores were 19–95 points. A higher scale score indicated a higher level of stigma. The content validity index of 19 items was 0.86. The Cronbach's alpha coefficient of the scale was 0.92. The item analysis results show that all factor loadings are significant (t-value > ±1.96). The correlation coefficient between the DSAS-2 and the test–retest technique was 0.82(İnkaya ve Karadağ 2021).

Data Collection

Data were collected after obtaining consent from patients who applied to the hospital where the study was performed. Data were collected between February 2023-April 2023. Patient data were collected through face-to-face interviews. The researchers gave the questionnaires to the participants and asked them to complete them. The response time of the questionnaire was approximately 10–15 minutes. The researchers gave information that they could leave the study at any time and that the research data would only be used for scientific research and that the patients' personal data would not be shared anywhere.

Data Analysis

SPSS (Statistical Package for Social Science) 22.0 package program was used for statistical evaluation. Mean, standard deviation, minimum and maximum values and percentages were used for descriptive data. Kruskall Wallis H test was performed to determine the differences between groups. Skewness and kurtosis values were examined to test whether the data met the normality assumption. The data set was normally distributed. Pearson correlation analysis was performed. The statistical significance level was calculated as $p < 0.05$, the margin of error as 0.05, and the confidence interval as 95%.

Ethical Considerations or Ethical Approval

The ethical permission for the study was obtained from the Necmettin Erbakan University Health Sciences Scientific Research Ethics Committee (04.01.2023, 2022/362). Additionally, written permission was obtained from the Medical Faculty Hospital Chief Physician (24.01.2023, E-14567952-900-301012). Verbal and written informed consents were obtained from the participants.

Limitations

The researchers collected the data only in one hospital. The research results cannot be generalized.

RESULTS

Table 1 shows the descriptive characteristics of the participants (Table 1).

Table 1. Characteristics of the Participants (n= 165)

	n	%
Marital status		
Married	143	86.7
Unmarried	22	13.3
Education		
Primary school	109	66.1
Secondary school	12	7.3
High school	30	18.2
University	14	8.5
Perceived economic status		
Good	51	30.9
Medium	103	62.4
Poor	11	6.7
Working at a job		
Retired	60	36.4
Working	35	21.2
Not Working	70	42.4
Chronic illness		
Yes	111	67.3
No	54	32.7
Type of treatment		
OAD	78	47.3
Insulin	14	8.5
OAD+Insulin	73	44.2
Age	59.02± 9.02	Min:40 Max:79
BMI	30.38± 5.96	Min:14.69 Max: 60.35
Time (year) since T2DM diagnosis	11.51± 6.94	Min: 1 Max: 40

Abbreviations: BMI (Body Mass Index),Min: Minimum, Max: Maximum, OAD: Oral Antidiabetic Drugs, T2DM (Type 2 Diabetes Mellitus)

The mean DSAS-2 total and subscale scores of the participants were moderate. According to the mean SDSCA subscale scores, the level of SCA of participants in the Diet, Blood Glucose, and Foot care subscales was moderate and their SCA in the Exercise subscale was low. Within the scope of SCA, the smoking status of the diabetics was also examined. Notably, 29.1% of the participants with diabetes were smokers, and they smoked an average of 21 cigarettes per day (Table 2).

Table 2: The Mean DSAS-2, SDSCA Total and Subscale Scores of the Participants

Scale	X±SD	Min	Max	Average
Threated Differently	15.29± 4.10	7	27	6-30
Blame and Judgement	21.43± 4.85	9	31	7-35
Self-stigma	17.15± 4.15	6	27	6-30
DSAS-2 (Total)	53.88± 11.85	19	79	19-95
SDCA				
Diet	3.39± 1.16	0.75	6.25	0-28
Exercise	1.58± 1.60	0	7	0-14
Blood Glucose	3.10± 1.95	0	7	0-14
Food Care	3.02± 1.81	0	7	0-14

SDSCA: Summary of Diabetes Self-Care Activities, DSAS-2: Type-2 Diabetes Stigma Assessment Scale, X: Mean, SD: Standard Deviation, Min: Minimum, Max: Maximum

Table 3. The Mean DSAS-2, SDSCA Total and Subscale Scores of the Participants According to Treatment

	OAD	Insulin	OAD+Insulin	KW	p	Tamhane
Diet	3.68±1.15	3.14±0.73	3.12±1.16	10.255	**0.006**	OAD>OAD+insulin
Exercise	2.00±1.15	1.17±1.29	1.22±1.24	6.072	**0.048**	OAD>OAD +insulin
Blood Glucose	3.37±2.07	2.35±1.65	2.96±1.85	3.723	0.155	-
Food Care	3.27±1.82	2.07±1.74	2.94±1.78	6.717	0.064	-
Threated Differently	14.28±4.03	14.00±3.18	16.63±3.98	14.432	**0.001**	OAD+ insulin >OAD
Blame and Judgement	20.30±5.07	20.21±3.55	22.87±4.48	12.892	**0.002**	OAD+ insulin >OAD
Self-stigma	16.23±4.20	17.14±3.67	18.13±4.01	7.317	**0.026**	OAD+ insulin >OAD
DSAS-2 (Total)	50.82±11.96	51.35±8.25	57.64±11.36	14.026	**0.001**	OAD+ insulin >OAD

OAD: Oral Antidiabetic Drugs, SDSCA: Summary of Diabetes Self-Care Activities, DSAS-2: Type-2 Diabetes Stigma Assessment Scale, KW: Kruskall Wallis H

Table 4. The Relationship Between DSAS-2, SDSCA Total and Subscale Scores

	Diet		Exercise		Blood Glucose		Food care	
	r	p	r	p	r	p	r	p
Threated Differently	-.061	.433	-.215	**.006**	.073	.349	-.141	.071
Blame and Judgement	-.200	**.010**	-.192	**.014**	-.182	**.019**	-.218	**. 005**
Self-stigma	-.107	.171	-.255	**.001**	-.172	**.028**	-.184	**.018**
DSAS-2 (Total)	-.141	.071	-.242	**.002**	-.160	**.040**	-.203	**.009**

DSAS-2: Type-2 Diabetes Stigma Assessment Scale

Table 5. The Relationship Between Some Variables and DSAS-2, SDSCA Total and Subscale Scores

	Age		BMI		Time since diagnosis	
	r	p	r	p	r	p
Threated Differently	-.047	.547	.254	**.001**	.087	.265
Blame and Judgement	-.060	.445	.448	**.000**	.111	.157
Self-stigma	-.130	.097	.226	**.004**	.018	.821
DSAS-2	-.086	.270	.351	**.000**	.082	.297
Diet	.055	.486	-.206	**.008**	-.073	.351
Exercise	-.119	.128	-.268	**.000**	-.187	**.016**
Blood Glucose	.052	.505	-.368	**.000**	.017	.825
Food Care	.082	.293	-.185	**.018**	.109	.163

DSAS-2: Type-2 Diabetes Stigma Assessment Scale, BMI (Body Mass Index)

The mean diet and exercise scores of the patients receiving only oral antidiabetic drugs (OAD) were significantly higher than those receiving OAD+insulin. The patients receiving OAD+insulin had significantly higher DSAS-2 total and subscale scores than those receiving OAD alone (Table 3). A negative correlation was observed between the DSAS-2 and SDSCA subscales of exercise, blood glucose, and foot care (Table 4). There is a positive correlation between the BMI and DSAS-2 total and subscale scores and a negative correlation between the SDSCA subscale scores (Table 5).

DISCUSSION

This study was performed to determine SCA, stigmatization levels, and the relationship between SCA and stigmatization in patients with T2DM. The results of the study were important to determine the effect of psychosocial factors including stigmatization on SCA of patients with T2DM and increase treatment adherence.

The mean DSAS-2 total and subscale scores of the participants were moderate. Similar to the results reported in the present study, in the literature, the patients with T2DM experience moderate levels of stigmatization (Li et al., 2023). A holistic approach to T2DM treatment and screening for personality traits and quality of life are necessary (Woon et al., 2020). In the present study, the patients using OAD+insulin experienced more stigmatization than the patients using only OAD. Similar to our results, the studies in the literature have demonstrated that stigmatization was higher in patients with T2DM treated with insulin than in those treated with OAD and that treatment type, duration of treatment, number of daily injections and perceived health level were predictors of stigmatization (Aslan et al., 2023).

T2DM is a chronic disease and as with any chronic disease management, SCA is important for disease management. The participants had a moderate level of SCA in terms of diet, blood glucose, and foot care subscales and a low level of SCA in the exercise subscale. According to the literature, SCA of patients with T2DM are inadequate and this inadequacy leads to an increase in diabetes-related complications (da Rocha et al., 2020). In patients with T2DM, self-care affects adherence to treatment of the disease; the higher the self-efficacy, the higher the level of adherence to treatment(Krzemińska et al., 2021). Low levels of SCA, especially in the exercise subscale, may pose additional risks for weight control in individuals with T2DM. Multiple types of exercise improve health and glycemic control in patients with T2DM (Kanaley et al., 2022). In the present study, diet and exercise self-care activities of patients receiving only OAD were significantly higher than those receiving OAD+insulin. The addition of insulin therapy in the treatment of T2DM is associated with inadequate glycemic control. Diet and exercise play an important role in glycemic control.

The present study noted a negative correlation between stigmatization and SCA in the exercise, blood glucose, and foot care subscales. As the level of stigmatization increased, SCA decreased. Reportedly, adults who experience diabetes-related stigma have poor diabetes self-management and self-efficacy (Puhl et al., 2020). Stigmatization significantly predicts the self-efficacy of patients with T2DM (Ozturk et al., 2022). Patients may not perform SCA sufficiently as the level of self-efficacy decreases. Patients with T2DM experience negative emotions including anxiety and depression (Woon et al., 2020). These negative emotions can negatively affect self-efficacy. Stigmatization is negatively associated with medication adherence and with quality of life in patients with T2DM (Li et al., 2023).

In the present study, the average BMI level of the participants was obese 1 and the level of stigmatization increased as the BMI increased. Studies have shown that individuals with T2DM experience weight-related stigma at a higher rate than the general population and internalize these forms of stigma (Himmelstein ve Puhl 2021). Stigma due to their T2DM, may be vulnerable to weight stigma (Pearl 2018). There is a negative association between T2DM stigma and participation in glycemic management and self-management behaviors also positive association with depressive and anxious symptoms (Akyirem et al., 2023). Therefore, stigmatization needs to be controlled to ensure adherence to treatment and weight control.

CONCLUSION

The participants experience moderate levels of stigmatization. They have a moderate level of SCA in the Diet, Blood Glucose, and Foot care subscales and a low level of SCA in the Exercise subscale. A negative correlation was observed between stigmatization and exercise, blood glucose, and foot care. Furthermore, a positive correlation was noted between BMI and stigmatization and a negative correlation between BMI and SCA.

Nurses should identify and evaluate the stigmatization levels in patients with T2DM within the scope of holistic care. In addition to physiological parameters, psychosocial factors such as stigmatization should be determined in routine follow-up of patients. Stigmatization appeared to affect patients' self-care and, therefore, disease management. Studies investigating the relationship between stigmatization and self-efficacy and adherence to treatment parameters should be performed. Further research is recommended to identify the underlying causes of stigmatization. Also, community educations, provision of psychosocial support to patients with T2DM and training of health professionals are recommended.

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