Wydawnictwo UR 2024
ISSN 2544-1361 (online)
doi: 10.15584/ejcem.2024.1.24

http://www.ejcem.ur.edu.pl
European Journal of Clinical and Experimental Medicine
Eur J Clin Exp Med 2024; 22 (1): 128–133

ORIGINAL PAPER

Stigma and its relationship with life satisfaction in patients with type 2 diabetes mellitus

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ABSTRACT

Introduction and aim. This study aims to determine the level of stigma in patients with type 2 diabetes mellitus (T2DM) and evaluate its relationship with their life satisfaction.

Material and methods. This is a descriptive and cross-sectional study conducted in a single tertiary care center. Two hundred and ten patients ≥18 years old diagnosed with T2DM were included in this study. The relationship between the "Type 2 diabetes stigma assessment scale" and the "Satisfaction with life scale" was assessed using Pearson correlation analysis.

Results. The average age of the participants was 54.85±15.81 years. The majority of patients reported adherence to diabetes treatment and having comorbidities. Stigma levels were higher in patients ≤65 years, those with less than a high school education, and those receiving insulin or oral anti-diabetic treatment, but lower with a T2DM diagnosis duration of ≤ 5 years ($p<0.05$). Life satisfaction was influenced by age, education status, economic status, adherence to treatment, dietary compliance, and the presence of comorbidities. A moderately negative relationship between stigma level and life satisfaction was identified.

Conclusion. The study's results indicate that an increase in stigma level is associated with a decrease in life satisfaction in patients with type 2 diabetes mellitus.

Keywords. life satisfaction, stigma, type 2 diabetes mellitus

Introduction

It is estimated that there are approximately 537 million adults aged between 20–79 years with type 2 diabetes mellitus (T2DM) diabetes worldwide. This constitutes the vast majority of diabetes cases (over 90%) and affects more than 220 million individuals globally.[1] In Türkiye, it is estimated that 42% of the adult population has either diabetes or prediabetes.[2] Diabetes is a disease that can lead to psychological, social, and psychosocial issues for patients. The psychological well-being of individuals with diabetes can adversely affect the management of the disease. Stigma, one of the factors influencing psychological well-being, is a significant problem experienced by a high proportion of individuals with diabetes.[3-4]

Stigma is defined as "a significant deterioration of one's reputation or devaluation."[5] Individuals with chronic illnesses can experience stigma due to their conditions.[4,6] In the literature, while there are numerous studies on the medical aspects and physical complications of diabetes, relatively few studies have focused on the stigma faced by patients with T2DM due to their diabetic status.[3] A multinational study reported that one out of every five people with diabetes experienced discrimination.[7] In a study by Abdoli et al., participants stated experiencing stigma in all as-

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Received: 20.10.2023 / Revised: 22.11.2023 / Accepted: 14.12.2023 / Published: 30.03.2024

Turen S, Yurtsever M. Stigma and its relationship with life satisfaction in patients with type 2 diabetes mellitus. *Eur J Clin Exp Med.* 2024;22(1):128–133. doi: 10.15584/ejcem.2024.1.24.

pects related to diabetes and feeling deprived of a normal life.[8]

Experienced or perceived stigma can significantly damage a person's social identity. Health-related stigma serves as a barrier to seeking help and participating in health services, hindering efforts to improve health.[9-10] Stigma in diabetes is associated with poor disease management. It can present a barrier to accessing diabetes-related services, employment, and marriage opportunities, thereby hindering patients with diabetes from playing an active role in society.[1] Increased stress due to experiencing stigma can negatively impact quality of life by leading to behavioral changes in managing the disease and non-adherence to treatment.[11-13]

Life satisfaction refers to a cognitive/judgmental process and is defined as the overall assessment of individuals' quality of life according to their chosen criteria. It is one of the fundamental elements that people need to be happy and find meaning in their lives.[14] Based on the literature, studies were found reporting that high levels of stigma in type 2 diabetes were associated with less participation in recommended diabetes self-management behaviors, including diet and physical activity behaviors.[15-17] These negative judgments can affect individuals' self-care behaviors and change their life satisfaction.[4,18] Perksy et al. reported in their study that stigma was associated with reduced self-care, increased symptoms, and reduced life satisfaction in individuals with type 2 diabetes.[18] However, there is not enough study examining the level of stigma in patients with T2DM and its relationship with life satisfaction.

Research questions:

1. What is the level of stigma and life satisfaction in patients with T2DM?
2. Is there a relationship between stigma and life satisfaction in patients with T2DM?

Aim

This study examined the level of stigma in patients with T2DM and its relationship with life satisfaction.

Material and methods

This is a descriptive and cross-sectional study. Data were collected through surveys between January and March 2023. The surveys were conducted face-to-face with individuals and took an average of 10-15 minutes. The population of the study consisted of patients diagnosed with T2DM in an education and research hospital in Istanbul. The hospital offers 60 internal medicine beds, 20 of which are set aside for diabetic patients, with roughly 80–100 diabetes mellitus patients admitted per month. The sample size for the study was determined as 207 patients, calculated using the formula n=t2pq/d2 based on unknown population parameters. All patients who were admitted to the clinic with the diagnosis of T2DM on the dates of the study and who met the inclusion criteria of the study were included. Patients aged 18 and above, diagnosed with T2DM, and willing to participate in the study were included. Patients with communication problems and those who did not agree to participate were excluded from the study. The study was completed with 210 participants.

Data collection

Data were collected using the "Data collection form," which was developed based on the literature, the "Type 2 diabetes stigma assessment scale (DSAS-2)," and the "Satisfaction with life scale (SLS)."

Data collection form

This form consists of 20 questions about the participants' socio-demographic characteristics and conditions related to diabetes (duration of illness, comorbidities, family history of diabetes, etc.).

Type 2 diabetes stigma assessment scale (DSAS-2)

A scale developed by Browne et al. and adapted to Turkish by İnkaya and Karadağ is based on a 5-point Likert-type scale and comprises 19 items.[5,19] The scale has three subscales: 1) Treated differently, 2) Blame and judgment, and 3) Self-stigma. The total stigma score ranges from 19 to 95 points, with a higher score indicating a higher level of stigma. The Cronbach's alpha value for this scale was determined to be 0.82. In this study, the Cronbach's alpha values were found to be 0.94 for the total stigma level, 0.81 for the treated differently subscale, 0.89 for the blame and judgment subscale, and 0.79 for the self-stigma subscale.

Satisfaction with life scale (SLS)

This scale provides a general assessment of individuals' life satisfaction. Developed by Diener, Emmons, Larsen, and Griffin and adapted to Turkish by Dağlı and Baysal, the scale is a 7-point Likert-type (1: Strongly disagree – 7: Strongly agree) and consists of five items.[14,20] A higher score on the scale indicates higher life satisfaction. The Cronbach's alpha value for this scale is 0.88, and it was found to be 0.89 for this study.

Ethical considerations

This study adheres to the ethical principles outlined in the Declaration of Helsinki. The necessary permissions were obtained from the institution where the study was conducted. The University Institutional Review Board approved the study (IRB date and number: 14.10.2022/2022.135). Both verbal and written informed consent were obtained from participants who met the study criteria. Participants were assured that their responses would remain anonymous and confidential.

Table 1. Socio-demographic and clinic data of the participants (n=210)*

Age	Mean ± SD (Min.–Max.)	54.85±15.81 (19–93)	
		n	%
BMI (kg/m²)	Normal	49	23.3
	Overweight	100	47.6
	Obesity	61	29.0
Gender	Female	126	60.0
	Male	84	40.0
Marital status	Married	163	77.6
	Single	47	22.4
Educational status	Literate	57	27.1
	Primary	80	38.1
	High school	42	20.0
	Bachelor's degree	31	14.8
Economic status	Income more than expenses	68	32.4
	Income partially covers expenses	78	37.1
	Income less than expenses	64	30.5
Working status	Working	98	46.7
	Not working	112	53.3
Home status	Alone	27	12.9
	Living with family	183	87.1
Family history of diabetes	Yes	129	61.4
	No	81	38.6
Duration of illness	≤ 5 years	61	29.0
	6-10 years	61	29.0
	≥ 11 years	88	42.0
Type of diabetes treatment	Insulin	66	31.4
	OAD	67	31.9
	Insulin + OAD	77	36.7
Treatment adherence	Yes	103	49.0
	Partially	71	33.8
	No	36	17.1
Compliance to diet	Yes	64	30.5
	Sometimes	80	38.1
	No	66	31.4
Regular exercise	Yes	37	17.6
	Sometimes	84	40.0
	No	89	42.4
Comorbidity	Yes	124	59.0
	No	86	41.0
Regular physician follow-up	Yes	135	64.3
	No	75	35.7

* OAD – oral antidiabetic drug

Statistical analysis

Data analysis was conducted using SPSS Statistics 24.00 software. Continuous variables were presented as means ± standard deviation (SD), and categorical variables were expressed as percentages. A comparison of patients' DSAS-2 and SLS scores across age, economic status, educational status, presence of comorbidities, treatment adherence, diet compliance, and duration of illness was performed using an independent sample t-test and one-way analysis of variance (ANOVA). Tukey's HSD and LSD tests were employed for post hoc analysis. Pearson correlation analysis was conducted to assess the relationships between continuous variables. Two-sided p values <0.05 were considered statistically significant.

Results

The mean age of the study participants was 54.85±15.81 years. The majority of patients were female (60%), married (77.6%), not employed (53.3%), and living with their families (87.1%). Additionally, the majority had a family member with a diabetes diagnosis (61.4%), and 42% had a T2DM diagnosis for 11 years or longer. The other socio-demographic and clinical characteristics of the participants are presented in Table 1.

The DSAS-2 total score mean for the patients was determined to be 62.32±18.13. When evaluating the DSAS-2 subscales, the mean score for "treated differently" was 20.09±5.77, "blame and judgment" was 22.71±7.36, and "self-stigma" was 19.52±5.65 (Table 2). Statistically significant higher DSAS-2 scores were found in patients aged 65 and under, those with less than a high school education, and those receiving insulin or oral anti-diabetic (OAD) treatment. Further, patients with a T2DM diagnosis duration of 5 years or less had significantly lower DSAS-2 mean scores compared to others (p<0.05) (Table 3).

Table 2. Type 2 diabetes stigma assessment scale and satisfaction with life scale scores of the participants*

	n=210	Mean	SD	Min	Max
DSAS-2	Treated differently	20.09	5.77	6	30
	Blame and judgment	22.71	7.36	7	35
	Self-stigma	19.52	5.65	6	30
	Total Score	62.32	18.13	19	95
SLS	Total Score	12.33	4.27	5	25

* DSAS-2 – type 2 diabetes stigma assessment scale, SLS – satisfaction with life scale

The total mean score for the SLS among participants was 12.33±4.27 (Table 2). Statistically significantly higher SLS scores were found in patients under 65 years of age, those with a high school education or higher, those with a good income, those adhering to treatment, those adhering to the diet, and those without comorbidities alongside diabetes (p<0.05) (Table 3).

Life satisfaction total scores exhibited moderately negative correlations with both DSAS-2 total scores (r=-0.45, p<0.01) and all DSAS-2 subscales (respectively treated differently r=-0.44, p<0.01; blame and judgment r=-0.41, p<0.01; self-stigma r=-0.46, p<0.01) (Table 4).

Table 3. Factors affecting participants' levels of stigma and life satisfaction[a]

	Type 2 diabetes stigma assessment scale								Satisfaction with life scale	
	Treated differently	Test, p	Blame and judgment	Test, p	Self-stigma	Test, p	Total score	Test, p	Total score	Test, p
Age										
> 65 year	19.64±6.01	-2.116*	22.09±7.58	-2.064*	19.09±5.96	-1.879*	60.82±18.91	-2.265*	12.68±4.40	2.014*
≤ 65 year	21.36±4.87	0.03	24.45±6.42	0.04	20.74±4.48	0.03	66.56±15.07	0.02	11.34±3.71	0.04
Educational status										
< High school	20.93±5.38	2.835*	23.58±6.93	2.366*	20.30±5.19	2.628*	64.81±16.86	2.835*	11.79±4.02	-2.570*
≥ High school	18.51±6.17	0.005	21.08±7.88	0.01	18.07±6.18	0.01	57.66±19.57	0.009	13.36±4.55	0.01
Economic status										
More than expenses	19.21±6.10	1.322 π	21.34±7.55	1.862 π	18.55±6.02	0.754 π	59.44±19.04	1.414 π	13.69±4.44	6.346 π
Partially covers expenses	20.74±5.43	0.27	23.62±7.03	0.16	19.97±5.51	0.47	64.33±17.23	0.25	12.13±4.10	<0.001
Less than expenses	20.23±5.79		23.06±7.43		19.69±5.42		62.98±18.08		11.14±3.92	
Diabetes treatment										
Insulin	19.20±6.29	5.000 π	21.76±8.05	6.213 π	18.77±6.09	3.265 π	59.73±19.74	5.204 π	12.21±4.27	0.922 π
OAD	19.10±5.51	0.01	21.04±6.41	<0.001	18.78±5.37	0.04	58.93±16.70	0.01	12.90±4.70	0.40
Insulin + OAD	21.71±5.22		24.97±7.02		20.82±5.31		67.51±16.87		11.95±3.85	
Treatment adherence										
Yes	20.00±6.13	0.218 π	22.88±7.79	0.187 π	19.40±6.06	0.156 π	62.28±19.33	0.152 π	13.09±4.15	4.393 π
Partially	20.67±5.29	0.80	23.06±6.85	0.83	20.00±4.49	0.86	63.72±16.53	0.86	10.75±4.75	0.01
No	19.93±5.53		22.28±7.03		19.46±5.39		61.68±17.28		12.04±3.97	
Compliance to diet										
Yes	18.44±5.92	3.880 π	21.48±7.77	1.333 π	18.09±5.83	3.192 π	58.02±18.70	2.698 π	13.72±4.32	5.044 π
Partially	20.79±5.74	0.02	23.03±7.45	0.27	19.85±5.36	0.04	63.67±17.96	0.07	11.74±4.32	0.01
No	20.84±5.47		23.43±6.90		20.40±5.57		64.66±17.40		11.71±3.96	
Comorbidity										
Yes	19.40±5.78	-1.457*	22.08±7.41	-1.031*	18.99±5.63	-1.146*	60.47±18.14	-1.239*	11.84±4.07	2.033*
No	20.57±5.74	0.15	23.15±7.32	0.30	19.90±5.65	0.25	63.61±18.08	0.22	13.05±4.46	0.04
Duration of illness										
≤ 5 years	18.52±5.84	3.232 π	20.80±6.93	2.942 π	18.05±5.68	3.195 π	57.38±17.76	3.290 π	13.29±5.18	2.693 π
6-10 years	20.75±5.42	0.04	23.46±7.18	0.06	20.47±5.38	0.04	64.69±17.31	0.03	12.34±3.71	0.07
≥ 11 years	20.71±5.82		23.51±7.59		19.89±5.66		64.11±18.46		11.66±3.82	

[a] OAD – oral antidiabetic drug * – independent samples T-test, π – one-way analysis of variance (ANOVA) p<0.05

Table 4. Relationship between participants' levels of stigma and life satisfaction[a]

n=210		SLS Total	DSAS-2 Total	Treated differently	Blame and judgment	Self-stigma
SLS Total	r	1				
DSAS-2 Total	r	-0.45*	1			
Treated differently	r	-0.44*	0.97*	1		
Blame and judgment	r	-0.41*	0.97*	0.91*	1	
Self-stigma	r	-0.46*	0.96*	0.91*	0.87*	1

[a] DSAS-2 – type 2 diabetes stigma assessment scale, SLS – satisfaction with life scale, r – Pearson correlation *p< 0.01

Discussion

Determining the level of stigma in patients with diabetes is crucial for nurses to understand their patients comprehensively and contribute to individualized diabetes management strategies.[6,10] In this study, both stigma and life satisfaction were found to be at a moderate level among patients with T2DM. The study's results indicate that an increase in stigma level is associated with a decrease in life satisfaction in patients with T2DM.

For patients with T2DM, accepting that they have a chronic illness and need to change their lifestyle can be challenging, and the pressure and stigma they face from people around them can lead to psychosocial problems.[21] Stigma, with its prejudiced attitude and behaviors that may lead to discrimination against the individual, further complicates disease management.[17] In a study by Himmelstein and Puhl with 1212 T2DM patients in the U.S. (2021), participants reported frequent experiences with diabetes-related stigma, including blame and judgment, self-stigma, and differential treatment. Additionally, the same study found that participants experienced high levels of stigma.[3] Similar studies have indicated that patients with T2DM experience significant levels of stigma to varying degrees.[4-5,22] This study also aligns with the literature, showing that patients experience stigma. Zhang et al.'s study involving 453 young and middle-aged patients with T2DM showed that the duration of diabetes, monthly income, and insulin treatment were significant factors influencing stigma. Age and education level did not affect stigma, but patients with a shorter duration of diabetes in the study group reported higher stigma levels.[22] In Hansen et al.'s study, patients with a shorter period of diabetes also had higher levels of stigma.[23] These results have been associated with insufficient knowledge about the disease, leading to poor disease control and individuals being more susceptible to stigmatization in their surroundings. In this study, the participants' levels of stigma were found to be moderate. It was observed that patients under 65, those with a high school education

or higher, those using both insulin and OAD, those not adhering to their diet, and those with a disease duration of 6 years or longer had higher stigma levels – this suggests that the level of stigma in individuals with T2DM may vary depending on cultural differences and individual characteristics.

Stigma in patients with diabetes is more related to the treatment process than the symptoms of the disease.[6] Insulin injections, blood sugar monitoring, dietary restrictions, hypoglycemic attacks, and more can contribute to an individual's experience of diabetes-related stigma.[10] Stigma experiences have negative implications for treatment, including insulin appraisals.[24] In Liu et al.'s study involving 12,000 participants, it was noted that patients using intensive insulin experienced stigma more frequently.[10] In line with the literature, in this study, patients using both insulin and OAD, those not adhering to the diabetes treatment, and those with a disease duration of six years or longer exhibited significantly higher levels of stigma. These results may be associated with the parallel increase in stigma with the duration of diabetes diagnosis, which could lead to both effective and unsuccessful disease management.

The life satisfaction levels of the participants in this study were found to be at a moderate level. In Rodríguez-Almagro et al.'s study, patients with T2DM had a moderate quality of life, with a lower quality of life observed in young and female participants compared to the other group.[25] In other studies in the literature, lower education levels and longer disease durations have been associated with lower life satisfaction.[26-28] In this study, no statistically significant difference was observed between genders; however, patients under 65 years of age, those with higher education levels, those with better economic conditions (income more than expenses), those who adhered to treatment and diet, and those without additional diseases had higher life satisfaction. These results suggest that patients who manage their disease and adhere to treatment have higher life satisfaction. Furthermore, this research found that an increase in stigma level is associated with a decrease in life satisfaction in patients with T2DM. In their study, Kato et al. emphasized the relationship between self-stigma level and self-esteem.[4] Besides the challenges in managing the disease, the prejudiced attitudes reflected by the social environment can lead individuals to distance themselves from society and self-stigma.

Study limitations

The study's limitations include its single-center design and the use of surveys, which may introduce selection bias. Treatment adherence, compliance to diet, and regular exercise was assessed without the use of a scale. Data regarding these parameters were obtained based on the patient's declaration.

Conclusion

In this study, it was determined that patients with T2DM had moderate levels of both stigma and life satisfaction. The study's results revealed that an increase in stigma level is associated with a decrease in life satisfaction in patients with T2DM.

Recognizing, monitoring, and evaluating self-stigma symptoms in patients is crucial for both nurses working in diabetes clinics and diabetes education nurses – this can contribute to enhancing patients' self-care motivation and reducing complications associated with the disease. Identifying psychosocial factors that may lead to stigma in patients, reducing disease stigma, developing coping strategies for dealing with negative emotions, providing counseling to reduce disease-related stress, and promoting diabetes knowledge among the public to prevent discrimination should be targeted to achieve this goal.

Declarations

Funding

This study was supported by the Scientific and Technological Research Council of Türkiye (TUBITAK) within the scope of the 2209-A University Students Research Projects Support Program under project number 1919B012203826.

Author contributions

Conceptualization, S.T. and M.Y.; Methodology, S.T. and M.Y, Software, S.T. and M.Y; Validation, S.T. and M.Y.; Formal Analysis, S.T.; Investigation, S.T. and M.Y.; Resources, S.T. and M.Y.; Data Curation, M.Y.; Writing Original Draft Preparation, S.T. and M.Y; Writing – Review & Editing, S.T. and M.Y; Visualization, S.T. and M.Y; Supervision, S.T.; Project Administration, S.T.

Conflicts of interest

The authors declare that there is no conflict of interest regarding this article.

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics approval

The University Institutional Review Board approved the study (IRB date and number: 14.10.2022/2022.135).

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