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The Relationship Between Diabetes Awareness and Acceptance Levels and Health Literacy in Individuals with Type 2 Diabetes Mellitus: A Descriptive- Cross-Sectional Study

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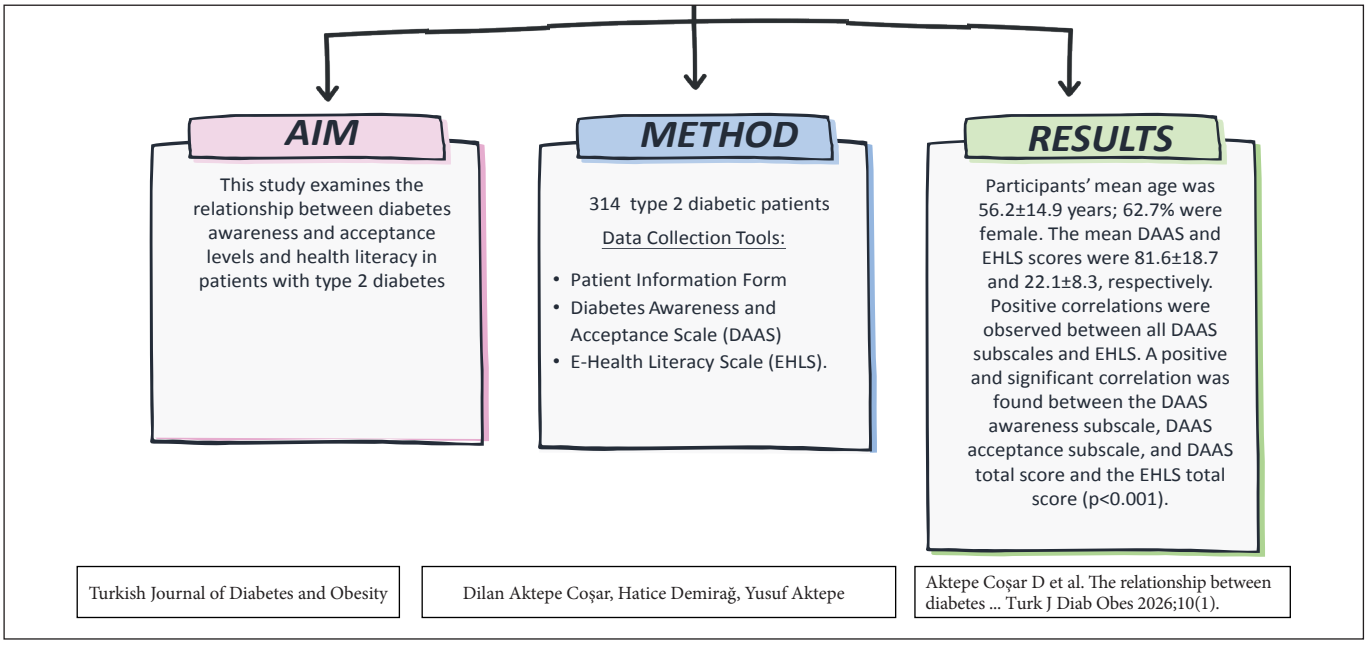
GRAPHICAL ABSTRACT



ABSTRACT

Aim: This study examines the relationship between diabetes awareness and acceptance levels and health literacy in patients with type 2 diabetes.

Material and Methods: The study was conducted as a cross-sectional study among outpatients presenting to hospitals and clinics in northeastern Türkiye between July 15, 2025, and November 15, 2025. Participants were 18 years of age or older and had type 2 diabetes; those with type 1 diabetes, gestational diabetes, or who could not complete the questionnaire were excluded from the study. Data were collected via face-to-face interviews using the Patient Information Form, Diabetes Awareness and Acceptance Scale (DAAS), and E-Health Literacy Scale (EHLS). Descriptive statistics, t-tests for independent samples, ANOVA, and Pearson correlation analyses were used.

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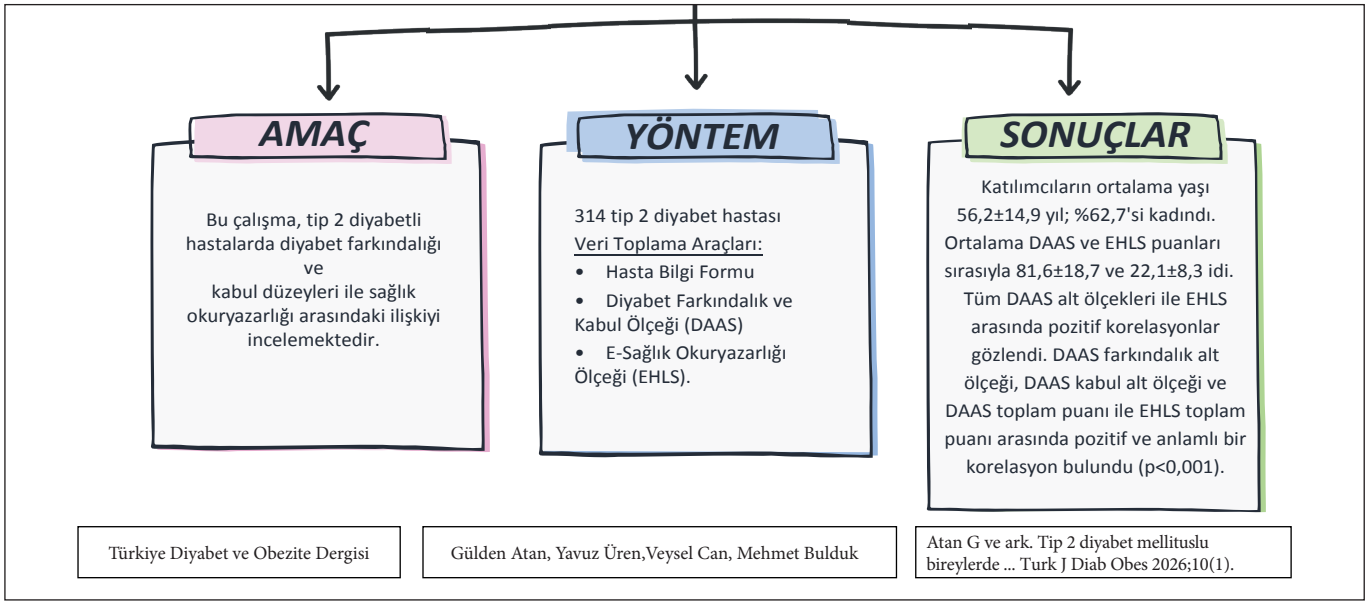
Results: Participants' mean age was 56.2±14.9 years; 62.7% were female. The mean DAAS and EHLS scores were 81.6±18.7 and 22.1±8.3, respectively. Men and single individuals had higher EHLS scores; higher education was associated with higher EHLS scores. DAAS scores increased with disease duration, whereas EHLS scores decreased with age and longer disease duration. Positive correlations were observed between all DAAS subscales and EHLS. Many participants expressed uncertainty or negative attitudes toward obtaining health information online. A positive and significant correlation was found between the DAAS awareness subscale, DAAS acceptance subscale, and DAAS total score and the EHLS total score ($p<0.001$).

Conclusion: The study found a positive and significant correlation between diabetes awareness, acceptance, and e-health literacy in individuals with type 2 diabetes mellitus (T2DM). It has been found that age, education, marital status, disease duration, general health perception, family history and nutritional habits may have an impact on these variables.

Keywords: *Diabetes mellitus, Diabetes awareness, Acceptance levels, Health literacy*

Tip 2 Diyabet Mellituslu Bireylerde Diyabet Farkındalığı ve Kabul Düzeyleri ile Sağlık Okuryazarlığı Arasındaki İlişki: Tanımlayıcı-Kesitsel Bir Çalışma

GRAFİKSEL ÖZET



ÖZ

Amaç: Bu çalışma, Tip 2 diyabetli hastalarda diyabet farkındalığı ve kabul düzeyleri ile sağlık okuryazarlığı arasındaki ilişkiyi incelemektedir.

Gereç ve Yöntemler: Çalışma, 15 Temmuz 2025 ile 15 Kasım 2025 tarihleri arasında Türkiye'nin kuzeydoğusundaki hastane ve kliniklere başvuran ayakta tedavi gören hastalar arasında kesitsel bir çalışma olarak yürütülmüştür. Katılımcılar 18 yaş ve üzeri olup tip 2 diyabet hastasıydı; gebelik diyabeti olanlar veya anketi tamamlayamayanlar çalışmadan dışlanmıştır. Veriler, Hasta Bilgi Formu, Diyabet Farkındalığı ve Kabul Ölçeği (DAAS) ve E-Sağlık Okuryazarlığı Ölçeği (EHLS) kullanılarak yüz yüze görüşmeler yoluyla toplanmıştır. Tanımlayıcı istatistikler, bağımsız örneklem t-testleri, ANOVA ve Pearson korelasyon analizleri kullanılmıştır.

Bulgular: Katılımcıların ortalama yaşı 56,2±14,9 yıl; %62,7'si kadındı. Ortalama DAAS ve EHLS puanları sırasıyla 81,6±18,7 ve 22,1±8,3 idi. Erkekler ve bekar bireylerin EHLS puanları daha yüksekti; daha yüksek eğitim düzeyi daha yüksek EHLS puanlarıyla ilişkiliydi. DAAS puanları hastalık süresiyle artarken, EHLS puanları yaş ve daha uzun hastalık süresiyle azaldı. Tüm DAAS alt ölçekleri ile EHLS arasında pozitif korelasyonlar gözlendi. Birçok katılımcı, çevrimiçi sağlık bilgisi edinmeye yönelik belirsizlik veya olumsuz tutumlar ifade etti. DAAS farkındalık alt ölçeği, DAAS kabul alt ölçeği ve DAAS toplam puanı ile EHLS toplam puanı arasında pozitif ve anlamlı bir korelasyon bulunmuştur ($p<0.001$).

Sonuç: Çalışma, Tip 2 diabetes mellituslu bireylerde diyabet farkındalığı, kabulü ve e-sağlık okuryazarlığı arasında pozitif ve anlamlı bir korelasyon bulmuştur. Yaş, eğitim, medeni durum, hastalık süresi, genel sağlık algısı, aile öyküsü ve beslenme alışkanlıklarının bu değişkenler üzerinde etkili olabileceği bulunmuştur.

Anahtar Sözcükler: *Diyabet mellitus, Diyabet farkındalığı, Kabul düzeyleri, Sağlık okuryazarlığı*

INTRODUCTION

Diabetes mellitus (DM) is a growing public health problem of the twenty-first century (1). Globally, it is estimated that there will be 853 million individuals with diabetes by 2050, with approximately 589 million adults aged 20-79 living with diabetes (2,3). Diabetes is a chronic disease, and patients need treatment and care throughout their lives (4).

Acceptance of the illness is important for individuals to adapt to treatment management and care (5). Acceptance of the illness and a decrease in negative feelings and thoughts about the illness facilitate the coping process (6). Failure to accept the illness can lead to accepting the limitations imposed by the illness, failure to adapt to treatment and lifestyle changes, and a decrease in independence and self-care (7). Furthermore, mindfulness and acceptance interventions have been widely used as non-pharmacological strategies in managing psychological problems due to chronic illnesses (8).

For individuals with T2DM, achieving optimal health outcomes, maximizing self-management, and adhering to medical treatment are related not only to disease awareness and acceptance but also to how patients access health information (9). This is because health literacy is one of the factors influencing the source of health control (9). Health literacy is defined as the ability of individuals to obtain, understand, and use basic health information and services to make informed health decisions, thereby maintaining and improving their health (10). For individuals with diabetes, health literacy refers to the ability to gather, understand, and use diabetes-related health education information and health services, particularly to manage and improve their condition (11). Low levels of health literacy in individuals with diabetes are associated with poor health outcomes (12). Furthermore, individuals with diabetes who possess adequate health literacy have higher health outcomes by adopting healthy behaviors (13).

Although separate studies have been conducted on diabetes awareness and acceptance (14-16) and health literacy (17,18), the relationship between these two concepts has not been clarified, and no studies have been found. Based on these findings, our study aims to examine the relationship between diabetes awareness and acceptance levels and health literacy in individuals with T2DM.

MATERIAL and METHODS

This cross-sectional study examines the relationship between diabetes awareness and acceptance levels and health literacy in Türkiye. A self-reported survey was conducted using face-to-face interviews with individuals diagnosed with T2DM in Türkiye.

Written permission was obtained from the Scientific Research and Publication Ethics Committee of Gümüşhane University (dated 06/25/2025 and numbered 2025/6). Written permission was obtained from X Province Y State Hospital (numbered E.774.01.06) for the data collection process of the study. Before data collection, participants were given detailed information about the study and their verbal consent was obtained. The confidentiality of the participants was ensured, no personal identification information was collected, and all data were anonymized and used only for research purposes. The information and records collected were used only for this study and for no other purpose. This study was performed in compliance with the Declaration of Helsinki.

Research Question

Question 1: What are the levels of diabetes awareness and acceptance of individuals diagnosed with T2DM?

Question 2: What are the health literacy levels of individuals diagnosed with T2DM?

Question 3: Is there a relationship between diabetes awareness and acceptance and health literacy in individuals diagnosed with T2DM?

The population of this study consisted of individuals diagnosed with T2DM who applied to Y State Hospital in X province between July 15, 2025, and November 30, 2025. The sample group for this study consisted of individuals diagnosed with Type 2 diabetes who presented to Y State Hospital in X province between July 15, 2025, and November 30, 2025. A power analysis was performed using the G*Power 3.1.9.6 program to scientifically determine the sample size. According to the parameters specified for the one-way ANOVA test, the effect size was calculated using Cohen's (1988) effect size table with a mean effect size of 0.25, a margin of error of 0.05, and a power value of 0.95. The calculation determined that the minimum number of participants was 305, and the study was completed with 314 individuals (19).

Inclusion and/or Exclusion Criteria: Inclusion criteria: having a diagnosis of T2DM for at least 6 months, being 18 years of age or older, being able to read and understand Turkish, volunteering to participate in the study, and providing verbal consent.

Exclusion criteria: Type 1 diabetes, having an advanced chronic disease other than diabetes (e.g., advanced cancer, advanced dementia, etc.), being pregnant, having a health problem that impairs communication at a mental or cognitive level, having a physical or mental condition that prevents completing the survey, and having been hospitalized for treatment within the last 3 months.

Data Collection

The study's data were collected through direct, face-to-face interviews with individuals conducted by the researcher. Participants included in the study were informed about the study and their verbal and written consent was obtained. During the data collection process, each participant was contacted individually, and the forms were completed thoroughly by the researcher. No participant refused to participate in or withdrew from the study. Data were collected using the *"Patient Introduction Form,"* the *"Diabetes Awareness and Acceptance Scale (DAAS),"* and the *"E-Health Literacy (EHL) Scale."*

Patient Information Form: This form was developed by the researcher based on a literature review to determine the participants' characteristics (gender, marital status, age, education level, duration of DM, general health status, presence of DM in first-degree relatives, daily oral anti-diabetic (OAD) medication, daily insulin use, receipt of education related to DM, and daily meal intake (20, 21).

"DAAS": A 23-item measure with two subscales, "Awareness" and "Acceptance," validated. The total score ranges from 23 to 115, the awareness sub-dimension ranges from 14 to 70, and the acceptance sub-dimension ranges from 9 to 45. Higher scores on the entire scale and/or subdimensions indicate higher levels of awareness and acceptance (1 = never, 2 = sometimes, 3 = unsure, 4 = often, 5 = always) (22). In this study, the internal consistency analysis of the scale revealed Cronbach's alpha values of 0.947 for the total DAAS, 0.932 for the awareness subscale, and 0.942 for the acceptance subscale.

"EHLS": The Turkish validity and reliability study of the scale developed Norman and Skinner (2006) was conducted by Uskun et al. (2022) (23, 24). The scale was developed to determine individuals' skills in using health-related information technology and the compatibility between e-health programs and individuals. It consists of two items related to evaluating internet use and eight items measuring internet attitudes. Responses to the five-point Likert-type scale are scored from 1 point for "strongly disagree" to 5 points for "strongly agree," and the scores of the eight items measuring internet attitudes are summed to make an assessment. The lowest possible score on the scale is 8, and the highest possible score is 40. A high score is interpreted as indicating a high level of e-health literacy (24). In this study, the Cronbach's alpha value was determined to be 0.967 in the internal consistency analysis of the scale.

Statistical Analysis

The data were analyzed using the IBM SPSS 23.0 program. Skewness and kurtosis coefficients of the scale scores within the ±1.5 range are considered evidence of normal distribution (25). Continuous data are presented as mean ± standard deviation and median, while categorical data are presented as frequency and percentage, arithmetic mean, independent t-test, one-way ANOVA test with post hoc (Tukey) analysis, and correlation tests were used to evaluate the statistics in the study.

Statistical significance was accepted at $p<0.05$. Correlations between scale scores were evaluated using Pearson's moment-product correlation if both variables showed a normal distribution.

RESULTS

According to Table 1, the mean age of individuals with T2DM was determined to be 56.18 ± 14.85 years. More than half of the participants were female (62.7%), 66.9% had an education level above primary school, and 85% were married. In terms of disease duration, 42.7% of participants had been living with T2DM for 6–14 years, and 56.4% perceived their general health status as moderate. In addition, 62.4% of participants reported having diabetes in their first-degree relatives. Almost all participants (92%) use oral antidiabetic medication, and more than half (61.1%) receive insulin therapy. Furthermore, 58% have not received any diabetes-related education, and 53.2% consume only three main meals daily (Table 1).

When comparing the mean scores of the DAAS and EHLS scales of individuals diagnosed with T2DM according to their descriptive characteristics and knowledge about the disease, the mean scores of the DAAS awareness ($t=-2.948$; $p=0.003$) subscale, DAAS total ($t=-2.244$; $p=0.026$) and EHLS total ($t=-2.288$; $p=0.023$) mean scores were significantly higher ($p<0.05$) compared to women, but no difference was found between the DAAS acceptance subscale mean scores in terms of gender ($p>0.05$) (Table 1).

When educational status was examined, individuals with primary education and above had significantly higher EHLS total ($t=-2.842$; $p=0.005$) mean scores were significantly higher ($p<0.05$), but no significant differences were found in terms of the DAAS awareness, DAAS acceptance subscales and DAAS total mean scores ($p>0.05$) (Table 1).

In terms of marital status, single individuals were found to have significantly higher average scores in the EHLS total scores ($p<0.05$) ($t=-2.087$; $p=0.038$) ($p<0.05$), but no significant difference was found between the DAAS acceptance, DAAS awareness subscales and DAAS total mean scores ($p>0.05$) (Table 1).

In terms of duration of illness, the DAAS awareness ($F=5.782$; $p=0.003$), DAAS total ($F=3.349$; $p=0.036$), and

Table 1. Comparison of the mean scores of the DAAS and EHLS scales among individuals with T2DM according to their demographic characteristics and knowledge about the disease

Variables	Case, n(%)	DAAS Subscales		DAAS Total	EHLS Total
		Awareness	Acceptance		
Gender					
Female	197 (62.7)	45.24±13.24	34.63±8.97	79.88±20.21	21.23±8.57
Male	117 (37.3)	48.90±8.74	35.53±8.19	84.44±15.51	23.44±7.71
Significance*		t=-2.948; **p=0.003**	t=-0.886; p=0.376	t=-2.244; **p=0.026**	t=-2.288; **p=0.023**
Education Level					
Primary education and below	104 (33.1)	46.30±14.17	35.10±9.39	81.41±20.23	20.05±9.31
Above primary education	210 (66.9)	46.75±10.60	34.90±8.33	81.66±17.95	23.05±7.60
Significance*		t=-0.286;p=0.775	t=0.188; p=0.851	t=-0.113; p=0.910	t=-2.842; **p=0.00**5
Marital Status					
Married	267 (85.0)	46.26±12.28	34.77±8.76	81.04±19.33	21.65±8.00
Single	47 (15.0)	48.53±9.15	36.10±8.22	84.63±14.44	24.38±9.68
Significance*		t=-1.476; p=0.144	t=-0.968; p=0.334	t=-1.487; p=0.141	t=-2.087; **p=0.038**
Duration of having DM					
5 years ≥1(1)	129 (41.1)	43.94±12.15	34.40±8.05	78.34±18.82	22.58±8.13
6-14 years(2)	134 (42.7)	48.20±9.89	35.44±9.23	83.64±18.04	22.76±8.34
15 years ≤(3)	51 (16.2)	49.15±14.64	35.19±8.83	84.35±19.25	18.86±8.11
Significance**		F=5.782; **p=0.003**	F=0.487; p=0.615	F=3.349; **p=0.036**	F=4.620; **p=0.011**
Difference		2 and 3 > 1	-	2 and 3 > 1	1 and 2 > 3
Overall health status					
Good(1)	66 (21.0)	44.50±14.03	34.51±8.36	79.01±20.88	21.78±7.43
Medium(2)	177 (56.4)	46.11±10.72	35.11±9.41	81.22±18.62	23.81±8.83
Poor(3)	71 (22.6)	49.80±12.02	35.05±7.04	84.85±16.41	17.94±6.06
Significance**		F=3.823; **p=0.023**	F=0.117; p=0.889	F=1.752; p=0.175	F=13.691; **p=0.000**
Difference		3 > 1	-	-	1 and 2 > 3
Presence of DM disease in first-degree relatives ¥					
Yes	196 (62.4)	47.20±12.22	34.51±9.24	81.72±19.60	21.05±8.21
No	118 (37.6)	45.61±11.28	35.73±7.65	81.34±17.19	23.72±8.25
Significance*		t=1.155; p=0.249	t=-1.208; p=0.228	t=0.178; p=0.859	t=-2.787; **p=0.006**
Daily OAD usage status					
Yes	289 (92.0)	46.35±11.82	34.69±8.67	81.05±18.83	21.86±8.12
No	25 (8.0)	49.48±12.52	38.16±8.37	87.64±16.27	24.32±10.21
Significance*		t=-1.260; p=0.209	t=-1.919; p=0.056	t=-1.693; p=0.092	t=-1.170; p=0.252
Daily insulin usage status					
Yes	192 (61.1)	48.10±11.78	34.18±8.53	82.29±18.65	20.69±8.06
No	122 (38.9)	44.24±11.71	36.22±8.81	80.46±18.80	24.20±8.28
Significance*		t=2.838; **p=0.005**	t=-2.037; p=0.042	t=0.842; p=0.400	t=-3.715; p=0.000
Status of receiving education about DM					
Yes	132 (42.0)	50.31±10.89	36.28±7.52	86.59±16.66	21.18±8.08
No	182 (58.0)	43.92±11.88	34.02±9.34	77.95±19.29	22.69±8.44
Significance*		t=4.867; **p=0.000**	t=2.363; **p=0.019**	t=4.241; **p=0.000**	t=-1.584; p=0.114
Daily meal intake					
3 main meals	167 (53.2)	47.56±11.78	36.57±7.39	84.14±17.60	23.01±7.97
3 main meals + 3 snacks	147 (46.8)	45.51±11.95	33.15±9.66	78.67±19.53	20.97±8.58
Significance*		t=1.528; p=0.128	t=3.484; **p=0.001**	t=2.592; **p=0.010**	t=2.173; **p=0.031**
			X±SD (Min.-Max.)		
Age (year)			56.18±14.85 (21-85)		

¥ First-degree relatives: mother, father, child, sibling, etc.; **OAD:** Oral anti-diabetic; **DM:** Diabetes mellitus; **DAAS:** Diabetes Awareness and Acceptance Scale; **EHLS:** E-Health Literacy Scale; **X:** Mean; **SD:** Standard deviation; **Min:** Minimum; **Max:** Maximum; *: Independent t-test; **: One-way ANOVA and Tukey post-hoc test. Bold values represent the analysis which yielded significant results.

EHLS total (F=4.620; p=0.011) mean scores were statistically significantly different (p<0.05) between groups based on disease duration, but no difference was found between groups in terms of DAAS acceptance subscale scores (p>0.05). Post hoc analysis revealed that individuals with a disease duration of 6–14 years and ≥15 years had higher DAAS awareness and DAAS total mean scores compared to those with ≤5 years, and that EHLS total scores were higher in individuals with ≤5 years and 6–14 years compared to those with ≥15 years (p<0.05) (Table 1).

When examined in terms of general health status, there were significant differences between the groups in terms of DAAS awareness (F=3.823; p=0.023) and EHLS total (F=13.691; p=0.000) score means (p<0.05), but no difference was observed in DAAS acceptance and total scores (p>0.05). Post hoc analysis revealed that individuals who perceived their general health status as poor had higher DAAS awareness scores than those who perceived it as good, while their EHLS total scores were lower than those who perceived it as good or moderate (p<0.05) (Table 1).

Individuals without a first-degree relative with DM had significantly higher mean EHLS total scores (t=-2.787; p=0.006) (p<0.05), but no difference was found in terms of DAAS awareness, DAAS acceptance subdimensions, or DAAS total mean scores (p>0.05) (Table 1).

In Table 1, no difference was found in DAAS sub-dimensions and DAAS total and EHLS total mean scores (p>0.05) (Table 1).

The DAAS awareness (t=2.838; p=0.005) subscale mean scores were significantly higher in daily insulin users compared to non-users (p<0.05); however, there was no difference between the DAAS acceptance subscale, DAAS total, and EHLS total mean scores (p>0.05) (Table 1).

Individuals who had received education about DM had significantly higher DAAS awareness (t=4.867; p=0.000), DAAS acceptance (t=2.363; p=0.019) subscales and DAAS total (t=4.241; p=0.000) scores were significantly higher (p<0.05), but no difference was found in terms of EHLS total scores (p>0.05) (Table 1).

Finally, individuals who consumed only three main meals per day had significantly higher DAAS acceptance (t=3.484; p=0.001), total DAAS scores (t=2.592; p=0.010) and EHLS total (t=2.173; p=0.031) were significantly higher (p<0.05), but no difference was found in DAAS awareness scores (p>0.05) (Table 1).

When evaluating the internet usage habits of individuals with T2DM, 31.8% of participants responded "Undecided" to the question "How important is it for you to be able to access health resources on the internet?" and 22.9% responded "Not useful at all" to the question "How useful do you find the internet when making decisions about your health?" (Table 2).

The mean score for the awareness subscale of the DAAS among individuals with T2DM was 46.60±11.88, the mean score for the acceptance subscale of the DAAS was 34.97±8.68, the DAAS total score average was 81.58±18.70, and the EHLS score average was 22.06±8.31 (Table 3).

A negative significant correlation was found between age and the awareness subscale of the DAAS, the acceptance subscale of the DAAS, the total DAAS score, and the total EHLS scale score averages in individuals with T2DM who participated in the study (p<0.001). However, a positive and significant correlation was determined between the DAAS awareness subscale, DAAS acceptance subscale, and DAAS total score and the EHLS total score (p<0.001) (Table 4).

Table 2. Internet usage among individuals with T2DM

	Findings (n=314)
How important is it for you to be able to access health resources online? *	
Not at all important	72 (22.9)
Not important	47 (15.0)
Undecided	100 (31.8)
Important	81 (25.8)
Very Important	14 (4.5)
When making decisions about your health, how useful do you find online resources?*	
Not at all helpful	72 (22.9)
Not helpful	34 (10.8)
Undecided	70 (22.3)
Helpful	138 (43.9)

*Data are shown as number, and percentage (%).

Table 3. Descriptive Statistics for the DAAS and EHLS Scales

Subdimensions*	**Findings (n=314)**	
DAAS Awareness subscale	46.60±11.88	(14-65)
DAAS Acceptance subscale	34.97±8.68	(13-50)
DAAS total	81.58±18.70	(42-115)
EHLS	22.06±8.31	(4-40)

*Data are shown as mean and standart deviation with minimum-maximum values. DAAS: Diabetes Awareness and Acceptance Scale; **EHLS:** E-Health Literacy Scale; X: Mean; **SS:** Standard deviation; **Min:** Minimum; **Max:** Maximum.

Table 4. Relationship between age, DAAS, and EHLS Scale mean scores in individuals with T2DM

Characteristics	1	2	3	4	5
(1) Age	**1**				
(2) DAAS Awareness	r=-0.294 **p<0.001***	**1**			
(3) DAAS Acceptance	r = -0.176 **p < 0.001***	r=0.644 **p<0.001***	**1**		
(4) DAAS Total	r = -0.269 **p<0.001***	r=0.935 **p < 0.001***	r=0.874 **p<0.001***	**1**	
(5) EHLS Total	r=-0.407 **p<0.001***	r=0.534 **p < 0.001***	r=0.620 **p<0.001***	r=0.628 **p<0.001***	**1**

DAAS: Diabetes Awareness and Acceptance Scale; **EHLS:** E-Health Literacy Scale; ***;** significance p<0.001 and Pearson correlation test. Bold values represent the analysis which yielded significant results.

DISCUSSION

This cross-sectional study found that diabetes DAAS awareness, total DAAS, and EHLS scores were significantly higher in men. This is consistent with a study conducted in the Punjab state of India (26), but contradicts a study conducted in Türkiye (27), where women scored higher. However, some studies reported no significant difference in diabetes DAAS awareness between genders (21,28). However, no significant difference was found between genders on the DAAS acceptance subscale. Some studies found that gender significantly influenced health literacy levels (29,30), while one study reported higher health literacy in men (31). Additionally, one study found that gender was a predictor of disease acceptance (32).

EHLS total scores were found to be significantly higher on average in individuals with primary school or higher education levels. However, no significant differences were observed between educational levels regarding the DAAS awareness, the DAAS acceptance subscales and DAAS total scores. In contrast, one study emphasized that employees with diabetes and high school graduates had higher levels of acceptance of the disease than non-employees (6). Similarly, no significant relationship was found between total DAAS scores and education level (21). Some studies have observed a significant difference between education level and health literacy in individuals with T2DM (29,33). A positive correlation was observed, with higher education levels being associated with greater e-health literacy (34).

It was determined that single individuals had significantly higher total EHLS scores. While Altınsoy and İnkaya reported a significant relationship between marital status and health literacy, other studies found no significant relationship (21,28,29). These inconsistent findings suggest that marital status may have a variable effect on health literacy, which may be influenced by cultural, social, or contextual factors.

In our study, DAAS awareness and DAAS total mean scores were found to be higher in individuals with a disease duration of 6-14 years and ≥15 years compared to those with a disease duration of ≤5 years. In contrast, Karataş and Özdemir (21) reported no correlation between disease duration and DAAS scores, while another study found higher disease acceptance in individuals with a disease duration of 1-5 years (35). EHLS total scores were found to be higher in individuals with a disease duration of ≤5 years and 6-14 years compared to those with a disease duration of ≥15 years. Altınsoy and Inkaya found that there was no significant difference in health literacy depending on the duration of the disease (29), while individuals with shorter duration of diabetes generally had higher e-health literacy than those with longer duration (34, 36). In one study, the mean EHLS score of patients with diabetes for more than 10 years was high and statistically significant (32). Diabetics with a longer duration of illness were found to have lower health literacy (37).

It was found that individuals with poor general health status had higher DAAS awareness scores and lower EHLS scores, but no significant difference was observed in DAAS acceptance or total scores. Similarly, literature has found that health literacy is high and significant in those who perceive their general health as good (31,38).

DAAS awareness scores were significantly higher in those using daily insulin compared to those not using it, regardless of medication type. Similarly, some studies have found no statistically significant difference between participants' total DAAS scores and medication type (6,21). Furthermore, Arı and Özdelikara found that individuals using OAD had higher levels of disease acceptance (35). DAAS awareness, DAAS acceptance, and DAAS total scores were significantly higher in individuals who received education about DM, but there was no difference in EHLS total scores. Similarly, Özonuk and Yılmaz also found no significant as-

sociation with receiving diabetes education (36). While one study found that health literacy levels were higher after education about DM (37), another study found no statistically significant difference (39).

DAAS acceptance levels and total DAAS and EHLS scores were found to be significantly higher in individuals who consumed three main meals a day. Greater disease acceptance in T2DM patients is associated with increased dietary adherence (16). However, no significant relationship was found between health literacy and dietary adherence (39).

A significant portion of individuals with type 2 diabetes were found to be uncertain about the importance of accessing online health resources and to find the internet helpful when making health-related decisions. In a study by Ilgar and Bilgili, the participants, stated that the internet is their preferred method for accessing health information, that online help assists in making health decisions, and that accessing online health services is beneficial (40).

In individuals with type 2 diabetes, the mean DAAS awareness subscale score was 46.60±11.88, the mean DAAS acceptance subscale score was 34.97±8.68, and the mean DAAS total score was 81.58±18.70. In another study, the DAAS total score was 71.28±24.68, DAAS awareness was 45.09±15.49, and the DAAS acceptance total score was 26.71±9.91 (20). In our study, the mean EHLS score was 22.06±8.31, while in the study by Deniz & Duman it was 20.82±9.15, and in Kılınç İşleyen & Özdemir, it was 25.00 (41,42).

A negative and significant correlation was found between age and DAAS awareness, DAAS acceptance, DAAS total score, and EHLS total scale mean scores in individuals with T2DM who participated in the study. Previous studies have also found a negative correlation between age and health literacy (34,43), but no significance was found in the study by Karataş and Özdemir (21). A positive and significant correlation was found between DAAS awareness, DAAS acceptance, DAAS total score, and EHLS total score.

This study has several limitations. First, this cross-sectional study cannot establish causality. Second, because it was conducted at a single center, it cannot be generalized. Third, the use of self-reported measures introduces recall bias.

A positive and significant correlation was found between DAAS awareness, DAAS acceptance, DAAS total score, and EHLS total score. A significant portion of individuals with type 2 diabetes were uncertain about the importance of accessing online health resources and the perceived usefulness of the internet in making health-related decisions.

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Author's Contributions
Concept: **Dilan Aktepe Coşar, Hatice Demirağ, Design: Dilan Aktepe Coşar,** Supervision: **Dilan Aktepe Coşar, Yusuf Aktepe,** Resources: **Dilan Aktepe Coşar, Hatice Demirağ,** Materials: **Dilan Aktepe Coşar, Yusuf Aktepe,** Data Collection and/or Processing: **Dilan Aktepe Coşar, Hatice Demirağ, Yusuf Aktepe,** Analysis and/or Interpretation: **Dilan Aktepe Coşar, Hatice Demirağ,** Literature Search: **Dilan Aktepe Coşar, Yusuf Aktepe,** Writing Manuscript: **Dilan Aktepe Coşar, Hatice Demirağ, Yusuf Aktepe,** Critical Review: **Dilan Aktepe Coşar, Hatice Demirağ, Yusuf Aktepe,** Other: **Dilan Aktepe Coşar, Yusuf Aktepe.**

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