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The effect of acceptance of illness on the comfort level in patients with type 2 diabetes mellitus

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Abstract

This study was carried out to determine the effect of acceptance of illness on the comfort level in patients with type 2 diabetes mellitus. The study was conducted as a cross-sectional study between August 2017 and July 2018. The research population consisted of patients with type 2 diabetes mellitus treated in the endocrine and diabetes outpatient clinic of a hospital located in the east of Turkey. The study was completed with 561 patients. A Patient Questionnaire Form, the Acceptance of Illness Scale, and the General Comfort Questionnaire were used to collect data. Educational status, income status, profession, people with whom the patient lived together, frequency of follow-up, treatment method, and chronic complications were found to be important predictors related to acceptance of illness and general comfort levels of individuals with diabetes in the study. A positive and weak relationship was detected between the Acceptance of Illness Scale and the mean scores of the General Comfort Questionnaire and its sub-dimensions. There was a positive correlation between the comfort level and the acceptance of illness. As the level of acceptance increased, comfort was found to increase. In line with the results of the study, it is recommended to facilitate acceptance of illness, investigate the methods to improve adaptation, and plan interventions.

Keywords: Acceptance of illness, nursing, comfort level, type 2 diabetes

Introduction

Diabetes is one of the most important diseases that cause morbidity and mortality all over the world [1]. While 424 million people worldwide have diabetes, approximately 193 million people are considered not to have been diagnosed with diabetes yet [2]. Approximately 3.8 million individuals lose their lives every year due to diabetes [3]. Type 2 diabetes mellitus constitutes 90–95% of all cases with diabetes [4].

Acceptance of the illness is needed for adaptation to treatment and lifestyle changes. Failure to accept the illness may cause maladjustment, delay of the recovery process, or the emergence of complications [5,6]. A high level of acceptance in patients ensures a sense of self-confidence. In this way, patients can cope with problems arising from the chronic illness, and the success of treatment to be implemented increases [7]. Acceptance, which has been conceptualized as something opposed to the rejection of illness, has been associated with coping and the possible consequences of diabetes. According to the results of a study by Gregg, acceptance of illness has been considered to be one of the important factors giving rise to positive results [8]. In another study by Harrison, patients with diabetes who had high levels of acceptance of illness were found to have better metabolic control [9].

Diabetes treatment covers dietary restrictions, exercise, weight control, monitoring blood glucose levels, and compliance with medications used [10]. Such lifestyle changes and treatments can lead to deterioration in the comfort of patients although they are necessary to maintain health [11]. Conditions such as non-stable blood glucose and biochemistry may cause deterioration of normal physiological functions and a reduction in comfort [12]. It is also known that there is a significant reduction in the quality of life of patients with diabetes who have multiple complications [13].

To cope effectively with the disease, it is important to accept the disease and change the lifestyle appropriately. The acceptance of illness of patients with diabetes is necessary to develop and implement effective coping mechanisms. Diabetes and its complications also necessitate lifestyle changes. The presence

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of such diseases, the necessity to make changes in lifestyle, and lifelong treatments can cause the comfort levels of individuals to fall.

This study aimed to determine the effect of acceptance of illness on comfort levels in individuals with type 2 diabetes mellitus.

Materials and Methods

Study type

This study, designed as a cross-sectional study, was conducted at a university hospital in the east of Turkey. The study was conducted between August 2017 and July 2018 on patients admitted to the endocrine and diabetes outpatient clinic of the hospital.

The research population consisted of 812 adult patients with type 2 diabetes mellitus who were treated at the endocrine and diabetes outpatient clinic of the university hospital. In the study, an attempt was made to reach the entire population without selecting a sample. Patients who did not want to participate in the study or did not comply with the inclusion criteria were excluded from the scope of the study, and 561 patients with type 2 diabetes mellitus were included in the study.

Data collection

Data of the study were collected between October 2017 and April 2018. The data were collected using the face-to-face interview technique by the researcher on two days a week (Tuesday and Friday), during working hours, in the endocrine and diabetes outpatient clinic. Questionnaire and scale forms were administered to each patient with type 2 diabetes mellitus who were willing to participate in the study and met the criteria for inclusion. Each interview lasted approximately 20–25 minutes.

Data collection instruments

Patient questionnaire form

The questionnaire created by the researchers had a total of 13 questions about patient characteristics and disease characteristics.

Acceptance of illness scale (AIS)

The scale was developed by Felton et al. and the Turkish validity and reliability study were carried out by Besen and Esen. The expressions that are on the scale express the difficulties and limitations caused by the health condition. The negative reactions associated with the disease and the lack or absence of emotions are considered to be a degree of acceptance of illness in the positive direction. The total score of the 5-point Likert-type scale varies between 8 and 40. A high score obtained from the scale indicates that the level of acceptance of illness is high [14,15]. The Cronbach's Alpha value of the Turkish form of the scale is .79 [15]. In this study, the Cronbach's Alpha value was found to be .81.

General comfort questionnaire (GCQ)

The Turkish validity and reliability study of the scale developed in 1992 by Kolcaba were conducted by Kuguoglu and Karabacak. This scale consists of 3 sub-dimensions (relief, relaxation, and superiority) and 48 four-point Likert-type items. There are positive and negative items on the scale. The mean score is calculated by dividing the total score obtained from the scale by the number of items on the scale. One can score a minimum of 48 points and a maximum of 192 points on the scale. A high score shows a high comfort level [16,17]. The Cronbach's Alpha value of the Turkish form of the scale is .85 [17]. In this study, the Cronbach's Alpha value was found to be .81.

Evaluation of data

Data were analyzed in the computer environment. Percentages, mean scores, standard deviations, independent samples t-tests, one-way analyses of variance (ANOVA), and regression analyses were used to do statistical evaluations. The results were evaluated in a 95% confidence interval and $p<.05$ significance level.

The ethics principles of the study

Before the study, written permission was obtained from the chief physician of the hospital, and ethical approval was received from the Non-Invasive Clinical Research Ethics Committee of İnönü University (2017/20-4). Patients with diabetes who would participate in the study were informed about the study. They were informed that their personal information would be protected, and they would be able to withdraw from the study whenever they wanted. Those who volunteered were included in the study.

Limitations of the study

There is only one limitation of this study. It is the use of an improbable random sampling method in the selection of patients from the population. Results can only be generalized to patients in this group.

Results

It was found that, of the patients with type 2 diabetes mellitus, the mean age was 48.25±15.19 years (min=18, max=70), 57% were female, 74.9% were married, 33.5% were elementary school graduates, 40.6% were housewives, incomes of 57.6% were equal to their expenses, and 71.5% lived with their spouses (Table 1).

Considering the findings on disease characteristics, it was found that the patients' duration of diabetes was 8.55±6.40 years, 28.9% went to follow-up twice a month, 66.1% received training about diabetes, 72.4% used oral anti-diabetics, 53.3% had nephropathy, and 56.7% had a comorbid chronic disease (Table 2).

Tables 2 and 3 show the educational status, income status, profession, people with whom the patient lived together, frequency of follow-up, treatment method, and chronic complications that were found to be related to acceptance of illness and general comfort levels of the individuals with diabetes and the results of the linear regression analysis that was carried out in this study. These variables described 13% of the total variance for the level of acceptance of illness in the individuals with diabetes ($R=.364$, $R^2=.132$, Adj. $R^2=.092$, $p<.001$). In this study, educational level, profession, people with whom the patient lived together, frequency of follow-up, treatment methods, and chronic complications were found to be significant predictors for acceptance of illness (Table 3).

Table 1. Distribution of the patients by their descriptive characteristics (n=561)

Descriptive Characteristics	S	X̄±SD	%
Age (min.=18, max.=70)	561	48.25±15.19	100
Gender			
Female	320		57.0
Male	241		43.0
Marital Status			
Married	420		74.9
Single	141		25.1
Educational level			
Elementary School	188		33.5
Middle School	125		22.3
High School	99		17.6
College and Higher	149		26.6
Profession			
Housewife	228		40.6
Worker	55		9.8
Civil Servant	126		22.5
Freelancer	44		7.8
Retired	75		13.4
Student	33		5.9
Income Level			
Income is smaller than expenses	114		20.3
Income is equal to expenses	323		57.6
Income is greater than expenses	124		22.1
People with whom the patient lives			
Alone	54		9.6
Mom and Dad	73		13.0
Spouse	401		71.5
Sibling	6		1.1
Relative	27		4.8

Table 2. Distribution of the patients by disease characteristics (n=561)

Illness information	S	%
Frequency of follow-up		
Only when I get sick	148	26.4
Every two months	154	27.5
Every four months	162	28.8
Every eight months	49	8.7
Once a year	48	8.6
Status of receiving training on diabetes		
Yes	371	66.1
No	190	33.9
Treatment method*		
Insulin	163	29.1
OAD	406	72.4
Exercise	174	31.0
Diet	191	34.0
Presence of chronic complications*		
Cardiovascular diseases	110	19.6
Nephropathy	92	16.4
Retinopathy	299	53.3
Neuropathy	76	13.5
Diabetic foot	49	8.7
Comorbid chronic diseases		
Yes	318	56.7
No	243	43.3
Duration of diabetes (X̄±SD)	8.55±6.40	

*Multiple options were marked

Table 3. Analysis of the patients' AISs and related risk factors

Risk Factors for AIS		AIS Total				
		B	SE	β	t	p
Educational Level	Elementary School					
	Middle School	2.068	.794	.126	2.604	.009
	High School	4.200	.963	.234	4.359	.000
	College and higher	5.158	1.351	.333	3.818	.000
Income Level	Income is greater than expenses					
	Income is equal to expenses	.444	.748	.032	.594	.553
	Income is smaller than expenses	-.002	1.088	.000	-.002	.998
Profession	Student					
	Housewife	-.494	1.663	-.035	-.297	.766
	Worker	-.247	1.743	-.011	-.142	.887
	Civil Servant	-2.095	1.550	-.128	-1.352	.177
	Freelancer	-2.888	1.802	-.113	-1.602	.110
	Retired	-3.169	1.798	-.158	-1.763	.078
People with whom the patient lives together	Spouse					
	Alone					
	Mom and Dad	1.238	.985	-.061	-1.257	.009
Frequency of follow-up	Every four months					
	Only when getting sick	-1.826	.806	-.118	-2.265	.054
	Every two months	-1.413	.870	-.092	-1.623	.105
	Every eight months	-.889	1.146	-.037	-.775	.439
	Once a year	-2.138	1.144	-.087	-1.868	.062
Treatment method	Insulin					
	OAD	.051	.821	.004	.062	.951
	Diet and Exercise	-1.085	.987	-.067	-1.100	.272
	Other*	1.723	.909	.100	1.896	.048
Chronic complication	Other					
	No complications	1.760	.843	.121	2.089	.037
	Retinopathy-Nephropathy-Neuropathy	1.026	.754	.074	1.360	.174

R=.364, R^2=.132, Adj. R^2=.092 p<.001
*Multiple treatment methods

The variables were found to explain 35% of the total variance for the general comfort level in the patients with diabetes (R=.597, R^2=.357, Adj. R^2=.327, p<.001). In this study, the educational level, income level, profession, people with whom the patient lived together, frequency of follow-up, treatment method, and chronic complications were found to be significant predictors for the general comfort level (Table 4).

In this study, there was a positive and weak correlation between the levels of acceptance of illness and levels of comfort in the patients with type 2 diabetes mellitus (p<.05). Comfort levels of the patients increased as their levels of acceptance of illness increased (Table 5).

Discussion

Diabetes is a chronic disease that is frequently encountered in today's world, and its incidence is ever-growing. Individuals with diabetes must first realistically accept their illness for their adaptation to the disease. The level of acceptance of illness can also be effective on individuals' quality of life and general comfort levels.

In our study, educational level was found to be a significant predictor for the acceptance of illness. Richardson et al. have shown in a study that the level of acceptance of illness increases as the educational level increases [18]. In another study by Sabone, patients with diabetes who were highly educated were found to have high levels of acceptance of illness [19]. An adequate educational level may be helping them understand the nature and conditions of chronic diseases.

According to the findings of the present study, the people whom the patient lived with were found to be a significant predictor for the acceptance of illness. According to McCracken, social support has a very important place in the acceptance of illness [20]. In a study that Allard carried out and he stated that attentive and participatory family behavior was very motivating for the acceptance of illness in adults with type 2 diabetes mellitus [21]. It may be considered that people with whom someone lives together are a serious source of social support for that person, and this will be a positive factor in terms of acceptance of illness for that person.

Table 4. Analysis of the patients' GCQs and related risk factors

Risk Factors for GCQ		GCQ Total				
		B	SE	β	t	p
Educational Level	Elementary School					
	Middle School	-.120	.035	-.144	-3.546	.001
	High School	-.146	.042	-.159	-3.446	.001
	College and higher	-.191	.059	-.242	-3.223	.001
Income Level	Income is greater than expenses					
	Income is equal to expenses	.040	.033	.057	1.229	.220
	Income is smaller than expenses	-.147	.048	-.170	-3.079	.002
Profession	Student					
	Housewife	.241	.073	.339	3.300	.001
	Worker	.218	.076	.186	2.856	.004
	Civil Servant	.266	.068	.319	3.920	.000
	Freelancer	.425	.079	.328	5.384	.000
	Retired	.302	.079	.295	3.837	.000
People with whom the patient lives together	Spouse					
	Alone	.066	.043	.064	1.530	.127
	Mom and Dad	-.197	.078	-.071	-4.079	.001
Frequency of follow-up	Every four months					
	Only when getting sick	-.156	.035	-.197	-4.412	.000
	Every two months	-.105	.038	-.134	-2.743	.006
	Every eight months	-.178	.050	-.144	-3.545	.000
	Once a year	-.186	.050	-.149	-3.711	.000
Treatment method	Insulin					
	OAD	-.052	.036	-.072	-1.446	.149
	Diet and Exercise	-.170	.043	-.205	-3.921	.000
	Other*	-.078	.040	-.088	-1.950	.052
Chronic complication	Other					
	No complications	.059	.037	.079	1.585	.114
	Retinopathy-Nephropathy-Neuropathy	.119	.033	.169	3.613	.000

$R=.597$, $R^2=.357$, Adj. $R^2=.327$ $p<.001$
*Multiple treatment methods

Table 5. Evaluation of the relationship between mean AIS and GCQ scores

	GCQ		Relief		Relaxation		Superiority	
AIS	r	p	r	p	r	p	r	p
	.30	.00	.27	.00	.23	.00	.27	.00

Considering the findings on the comfort of the individuals, it was seen that educational level was a significant predictor and that the comfort level decreased with the increase in educational level. Pinar et al. have also reached a similar conclusion in their study [22]. Moreover, Xiaoqin has revealed that more information may cause concerns about the prognosis of illness, increase the psychological burden, and can lead to a decrease in comfort [23]. With the increase in educational level, patients may improve their knowledge or attitudes related to the disease, and their adaptation to the disease may improve. However, paralleling the increase in educational level, expectations of individuals may also increase. Restrictive factors such as adaption to the disease and the treatment may result in reduced comfort.

In this study that we carried out, income level was found to be a significant predictor in terms of comfort level. Although patients presume the necessity of well-being for their comfort [24], an increase in income level does not directly bring well-being and happiness with it [25]. On the other hand, while low-income levels are not enough to meet expectations, high-income levels increase expectations. It may be said that this situation disrupts comfort.

In our study, it was found that the individuals' professions were a significant predictor of the comfort level. The necessity of adapting to life-long treatment and lifestyle changes in diabetes can cause patients to encounter difficulties in their working lives [26]. Beatty conducted a study where he found that those with chronic diseases could opt for self-employment and that self-employed patients felt more comfortable [27]. It can be said that active patients feel more adequate and that it will be easier for them to adapt to the

disease. On the other hand, the fact that individuals who are retired or housewives can allocate more time to themselves, which can also help them adapt to the disease better. A good adaptation can be considered to have a positive effect on the comfort level.

The people the patients lived together with were found to influence the patients' comfort level in our study. Wilson and Kolcaba have found that patients with social support have higher levels of comfort than those who are alone [24]. Irizarry et al. carried out a study where they found that social support and the people whom the patient lived with could improve the person's adaptation to the treatment and enhance his or her well-being and comfort [28]. People with whom the patient lives together are important social support sources for the patient. It can be said that factors such as help, motivation, and hope provided by such support systems affect the comfort level positively.

According to the results of our study, the frequency of follow-ups of the patients was found to be a significant predictor in terms of comfort level. We could not find a similar study or find it in the literature review that we conducted. It can be said that if people with diabetes go to follow-ups, they can evaluate their health status more easily, and the negative effect of diabetes on comfort level will also decrease. Moreover, when individuals go to regular follow-ups, they can be considered to feel psychologically better and have a higher level of perceived comfort.

According to our study, it was found that the practice of diet and exercise was a significant predictor of comfort level. In a study on patients with diabetes by Tang et al., the comfort level of patients with diabetes who were on a diet were found to gradually decrease [29]. The fact that patients with diabetes have specific diets to be followed constantly can make their choices and control in nutrition more ineffective. It can be said that this situation disrupts the comfort of people with diabetes.

As a result of our study, the chronic complications of diabetes were found to affect the comfort level. In his study, Carpenter found that patients with no chronic complications of diabetes had higher levels of comfort [30]. The presence of chronic complications can be thought to increase the burden of disease and reduces the level of comfort.

Considering the findings of the study, the mean AIS score was found to have statistically significant positive and weak correlations with the mean GCQ score and mean scores of all its sub-dimensions. It was seen that as the patients' levels of acceptance of illness increased, there was also an increase in comfort levels. There was no similar study in the literature. Acceptance of illness can be thought of as a way to improve the effective coping mechanisms, enhancing lifestyle changes, and adapt to treatment. Therefore, the patients with high levels of acceptance of illness can be said to have high comfort.

Conclusion

In this study, it was found that the level of acceptance of illness affected the level of comfort in the patients with diabetes. Educational level, frequency of follow-up, and chronic complications were found to be significant predictors in terms of acceptance of illness and comfort level.

In line with these results, healthcare workers should be aware of the factors that reduce or affect the level of acceptance of illness in individuals with diabetes. Moreover, the level of acceptance and comfort should be evaluated as a whole; initiatives that will enhance the level of acceptance in addition to comfort should be started. To investigate the relationship between acceptance and comfort level, it may be advisable to conduct research studies in broader and different groups as well.

Conflict of interests
The authors declare that they have no competing interests.

Financial Disclosure
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Ethical approval
The study was approved by the Non-Invasive Clinical Research Ethics Committee of İnönü University, Malaya, Turkey (2017/20-4).

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