

Psychosocial Adjustment of Diabetic Patients To Their Disease

Diyabetli Bireylerde Hastalığa Psikososyal Uyum

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SUMMARY

Objectives: The present descriptive study aimed to determine the psychosocial adjustment of diabetic patients to their disease.

Methods: The study sample consisted of inpatients in the endocrinology and metabolic diseases service of a university hospital in Ankara and a total of 122 patients diagnosed with diabetes who were referred to the polyclinic of the same hospital. Data were collected using the "Patient Information Form" prepared by the researcher upon reviewing the literature, the "Psychosocial Adjustment to the Illness Scale – Self-Report," and "Multidimensional Scale of Perceived Social Support." Mann–Whitney U test, Kruskal–Wallis test, and Spearman correlation coefficient, as well as descriptive statistics, were used to analyze the data.

Results: The diabetic patients' score average of psychosocial adjustment to their disease was 45±19.1. The areas that affected psychosocial adjustment the most were found to be the orientation to healthcare, vocational environment, sexual relationships, and psychological distress. Of the patients, 34.4% were observed to be well adjusted, 29.5% moderately adjusted, and 36.1% poorly adjusted. The patients' education level, profession, frequency of undergoing medical controls, and diet and exercise status, but not their age, years of diabetes, and use of oral antidiabetics along with insulin, were found to affect their psychosocial adjustment. The total psychosocial adjustment and adjustment to the areas of orientation to healthcare, domestic environment, extended family relationships, social environment, and psychological distress of diabetic patients increased as their social support increase.

Conclusion: The present study demonstrated the psychosocial adjustment of diabetic patients to be at a medium level.

Keywords: Diabetes; nursing; psychosocial adjustment; social support.

ÖZET

Amaç: Araştırma, diyabetli bireylerin hastalığa psikososyal uyumunu belirlemek amacıyla tanımlayıcı olarak yapılmıştır.

Gereç ve Yöntem: Araştırmanın örneklemini, Ankara'da bulunan bir üniversite hastanesinin endokrinoloji ve metabolizma hastalıkları servisinde yatarak tedavi gören hastaları ile aynı hastanenin polikliniğine başvuran toplam 122 hasta oluşturmuştur. Araştırma verileri, araştırmacı tarafından literatür taranarak geliştirilen "Hasta Tanıtım Formu", "Hastalığa Psikososyal Uyum–Öz Bildirim Ölçeği" ve "Çok Boyutlu Algılanan Sosyal Destek Ölçeği" kullanılarak toplanmıştır. Araştırma verilerinin değerlendirilmesinde tanımlayıcı istatistiklerin yanı sıra Mann Whitney U Testi, Kruskal Wallis Testi ve Spearman Korelasyon Katsayısı kullanılmıştır.

Bulgular: Araştırmaya katılan diyabetli bireylerin hastalığa psikososyal uyum puanı ortalaması 45±19.1'dir. Psikososyal uyumun en çok etkilendiği alanların sağlık bakımına oryantasyon, mesleki çevre, cinsel yaşam ve psikolojik baskı alanı olduğu belirlenmiştir ($p<0.05$). Hastaların %34.4'ünün iyi uyum, %29.5'inin orta uyum ve %36.1'inin kötü uyum sağladığı belirlenmiştir. Hastanın öğrenim durumu, mesleği, kontrole gelme sıklığı, diyet ve egzersiz durumu psikososyal uyumu etkilememektedir ($p<0.05$). Hastanın yaşı, diyabet yılı, insüline ek olarak oral antidiyabetik kullanımı psikososyal uyumu etkilememektedir ($p>0.05$). Diyabetli bireylerin sosyal destekleri arttıkça toplam psikososyal uyumlarının ve sağlık bakımına oryantasyon, aile çevresi, geniş aile ilişkileri, sosyal çevre, psikolojik baskı alanlarına uyumlarının arttığı belirlenmiştir.

Sonuç: Araştırmanın sonucunda, diyabetli bireylerin hastalığa psikososyal uyumlarının orta düzeyde olduğu belirlenmiştir.

Anahtar sözcükler: Diyabet; hemşirelik; psikososyal uyum; sosyal destek.

Introduction

Diabetes is the leading disease among the important chronic diseases due to its frequency and complications. Today, the increase in the socioeconomic level has changed lifestyles and led to a rapid increase in the prevalence of type 2 diabetes all over the world. The diabetes prevalence in the

adult population (aged between 20 and 79 years) was 8.3% in 2011, which is predicted to increase to up to 9.9% by 2030. International Diabetes Federation 2010 data determined the prevalence of diabetes in the adult population (aged between 20 and 79 years) to be 7.4%, of standardized diabetes according to the distribution of world population to be 8%, and of type 2 diabetes to be 7.2%.^[1]

As in all chronic diseases, patient's adjustment is important in diabetes, which is frequently observed and requires continuous treatment.^[2] Psychosocial adjustment to the disease includes adjustment to healthcare, vocational environment, home–family relationships, sexual relationships, extended family relationships, social environment, and psychosocial pressure.^[3] Adjustment to diabetes is affected by many factors specific to the disease, treatment, and individual. These factors include personal characteristics along with years of diabetes and age diagnosed with diabetes, such as

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patients' perception of health and disease, age, gender, profession, and so forth. While in compliance with the diet and the use of insulin is observed in patients diagnosed with diabetes at young ages, patients at old ages develop a more serious attitude toward diabetes, with better diabetes management and increased psychosocial adjustment.^[4-7] The risk of development of chronic or acute complications, unstable blood sugar, and a combination of diet, exercise, medication, and so forth to control the disease cause problems in the psychosocial adjustment of diabetic patients.^[8-10] In addition, the physiopathological changes arising from diabetes negatively affect patients' mental status and social life.^[11] Besides, depression and anxiety levels of diabetic patients increase due to the reasons such as sexual relationships being negatively affected, being unable to control the blood sugar, complications emerging along with the disease, and the difficulty in controlling the disease because of the work stress.^[12] The existence of depressive symptoms reduce cognitive and emotional adjustment to diabetes.^[13]

The support of the family and the environment is important to cope with and adjust to the disease in the case of chronic diseases.^[14] The need for social support particularly increases during diagnosis and when complications are observed.^[8] The patients in a family having balanced relationships, cooperation, less conflicts, and no role conflicts more easily be adjusted to their disease; while the adjustment of those in extremely protective, anxious, controlling, and directive families is disrupted.^[15]

Diabetes is a chronic disease that causes mental and cognitive problems as well as physiological complications and requires time to cope with. Along with the possibility of experiencing problems in psychosocial adjustment as a result of developing chronic or acute complications and unbalanced blood sugar, being unable to adjust psychosocially to the disease may lead to insufficient self-care behaviors, which can increase the chances of complications. Nurses play an important role in providing information and treatment, monitoring, and enhancing self-care behaviors in diabetic patients. Knowing the psychosocial adjustment of diabetic patients can guide the nurses to ensure a good disease management and prevent or delay the possible complications.

This study aimed to determine the psychosocial adjustment of diabetic patients to their disease.

Questions of the Study

1. What is the psychosocial adjustment level of diabetic patients?
2. What are the sociodemographic characteristics and the characteristics regarding the disease and treatment that affect the psychosocial adjustment of diabetic patients?

3. Does a relationship exist between the psychosocial adjustment scores and social support level of diabetic patients?

Materials and Method

Type of the Study

This was a descriptive and correlative study aimed to determine the psychosocial adjustment of diabetic patients to their disease.

Study Population and Sampling

The study population consisted of inpatients in the endocrinology and metabolic diseases service of a university hospital in Ankara, and patients referred to the polyclinic of the same hospital. The study sample consisted of inpatients in the endocrinology and metabolic diseases service and 122 patients referred to the endocrinology and metabolic diseases polyclinic of the said hospital who agreed to participate in the study between January 17, 2011, and May 9, 2011. The mean and standard deviation of the psychosocial adjustment scale were found to be 47 and 10.1, respectively, in the pilot study conducted between January 17, 2011, and February 18, 2011. The margin of error, power, and number of participants were found to be 0.05, 90%, and 122, respectively, with a maximum 3-unit error.

Data Collection

Data were collected using the Patient Information Form^[7,10,16-20] prepared by the researcher upon reviewing the literature, the Psychosocial Adjustment to the Illness Scale – Self-Report (PAIS-SR), and the Multidimensional Scale of Perceived Social Support (MSPSS).

Patient Information Form

The Patient Information Form included 27 questions with the independent variables in 3 sections: "Socio-Demographic Characteristics," "Information Regarding Treatment," and "Information Regarding the Management of Diabetes." The first section, "Socio-Demographic Characteristics," included questions about the patients' age, gender, treatment type, marital status, education level, profession, income level, and the people they live with. The second section, "Characteristics Regarding Treatment," included questions on the duration of diabetes, method of treatment, years of using oral antidiabetics and insulin, development of acute or chronic complications, duration of complications, and existing diseases other than diabetes. The last section, "Information Regarding the Management of Diabetes," included questions on the frequency of undergoing medical controls, diet and exercising status, self-monitoring of blood glucose, and glycosylated hemoglobin (HbA1c) level. The HbA1c values were obtained from the patients' records or the hospital's automation system.

Psychosocial Adjustment to the Illness Scale – Self-Report

PAIS-SR was developed by Derogatis and Lopez in 1983, as indicated by Adaylar, and measures the psychosocial adjustment to the disease.^[3] The scale included 46 questions in 7 fields of psychosocial adjustment. These fields were “Orientation to Healthcare” (Section 1), “Vocational Environment” (Section 2), “Domestic environment” (Section 3), “Sexual relationships” (Section 4), “Extended Family Relationships” (Section 5), “Social Environment” (Section 6), and “Psychological distress” (Section 7). The first section included eight, the second section included six, the third section included eight, the fourth section included six, the fifth section included five, the sixth section included six, and the seventh section included seven questions. Each question had four statements that determine the adjustment level between 0 and 3. Positive statements were scored “0,” and negative statements were scored “3.” A score lower than 35 shows a well psychosocial adjustment, between 35 and 51 shows a medium-level psychosocial adjustment, and higher than 51 shows a poor psychosocial adjustment.

The scale was tested for validity and reliability by Adaylar in 1995.^[3] Akça Talaz found the Cronbach’s alpha value of the PAIS-SR to be 0.92 in the reliability study on diabetic patients.^[10] The Cronbach’s alpha value was found to be 0.88 in the present study.

Multidimensional Scale of Perceived Social Support

MSPSS was developed by Zimet et al. in 1988 and adapted in Turkish by Eker and Arkar in 1995. It included 12 short items obtained from three different sources, which subjectively evaluated the sufficiency of the social support.^[21] The study was repeated by Eker et al. in 2001 to distinguish the terms family and special person. The scale was scored in an order from one to seven. The sources of support were categorized under three groups, and the questions concerning these groups consisted of four items. These groups were family (the 3rd, 4th, 8th, and 11th items), friends (the 6th, 7th, 9th, 12th items), and special person (the 1st, 2nd, 5th, and 10th items). The scale consisted of the choices “I largely agree,” “I agree,” “Undecided,” “I disagree,” “I largely disagree,” and “I totally disagree.” For each subscale, the subscale scores were obtained from the scores of these four items, and the total score of the scale was obtained by adding the scores of all subscales. A high total score showed a high perceived support, whereas a low total score showed a low perceived support or deprivation from support. Eker et al.^[21] found the total Cronbach’s alpha coefficient of the MSPSS to be 0.89 and the Cronbach’s alpha coefficients of the subscales to be 0.85 for family, 0.88 for friends, and 0.92 for special person. The total Cronbach’s alpha coefficient of the scale was found to be 0.84 in the present study.

Administration of the Data Collection Form

The data collection form was administered to the patients who agreed to participate in the study via face-to-face interviews between February 14, 2011 and May 9, 2011. The interviews were carried out in the meeting room of the polyclinic for the patients in the polyclinic and in the patients’ room for the inpatients. The interviews lasted for approximately 30 minutes.

Data Analysis

The SPSS package (SPSS, IL, USA) was used to analyze the data. Data were analyzed using the descriptive statistical methods (number, percentage, average, standard deviation, and mean). The independent-samples t test and the Mann–Whitney U test were used to compare two groups. The one-way analysis of variance and the Kruskal–Wallis test were used to compare the differences among multiple groups. The relationship between two numerical variables was analyzed using the Spearman correlation coefficient, since it was not normally distributed. The difference between the groups in terms of qualitative variables was analyzed using the chi square test. The independent variables of the study were age, gender, marital status, treatment status, education level, profession, income level, and the duration of diabetes. The dependent variables of the study were the psychosocial adjustment to the disease, the psychosocial adjustment areas, and the perceived social support level.

Ethical Considerations

The Senate Ethics Committee of Hacettepe University, Faculty of Health Sciences Dean’s Office was requested to evaluate the ethical convenience of this study, and the approval was obtained from the ethics committee on December 14, 2010, with the decision number of MSE/2010–1210. The official permission of the institution where the study was conducted and the written consent of the diabetic patients were also obtained. In addition, written permissions of the authors were obtained for the scales used in the study.

Results

Introductory Information of the Diabetic Patients

Of the diabetic patients, 40.2% were aged between 55 and 64 years, 63.9% were women, 86.1% were married, 61.5% were primary school graduates, 80.3% were living with their spouses, 47.5% were housewives, and 38.5% were retired. Of them, 52.4% evaluated their income level to be at a medium level.

Of the diabetic patients, 33.6% had diabetes for 16 years and longer, 71.3% used oral antidiabetics along with insulin, 21.3% used oral antidiabetics for 11–15 years, and 54.9% had been receiving insulin treatment for 1–5 years. The rate of

developing hyperglycemia, one of the acute complications of diabetes, was 18%, while the rate of developing hypoglycemia was 33.6%. Of the patients, 29.5% experienced neuropathy, 28.7% experienced retinopathy, and 6.6% experienced nephropathy. Of the diabetic patients, 77.9% had another disease. Of them, 64.8% had hypertension, 29.5% had hyperlipidemia, and 17.2% had heart disease.

The frequency of undergoing medical control for 37.7% of the patients was between 4 months and 1 year. Of the patients, 13.9% were not educated on the disease, 70.5% were provided education by nurses, 59.8% by a dietitian, 13.9% by a doctor, and 9% by all these three professionals. Of them, 47.5% stated that they paid attention to their diet, 28.7% stated that they regularly exercised, and 91.8% stated that they controlled their blood glucose at home. The average HbA1c value of the patients was 9.8%; the minimum value was 5.9%, and the maximum value was 18%.

Psychosocial Adjustment of the Diabetic Patients

The diabetic patients' score average of psychosocial adjustment to their disease was 45 ± 19.1 . The psychosocial adjustment was found to be affected the most by the orientation to healthcare, vocational environment, sexual relationships, and psychological distress subscales (Table 1). Of the patients, 34.4% were observed to be well adjusted, 29.5% were observed to be moderately adjusted, and 36.1% were observed to be poorly adjusted (Table 2).

The diabetic patients' education level, profession, frequency of undergoing medical controls, and diet and exercise status were found to affect their psychosocial adjustment

Table 1. The Score Averages of the Diabetic Patients on the Psychosocial Adjustment to the Illness Scale - Self-Report and on Its Subscales

PAIS-SR Subscales	Min.-Max.	Mean \pm SD
Orientation to healthcare	0-24	10 \pm 4
Vocational environment	0-18	6 \pm 3.7
Domestic environment	0-24	5 \pm 4.5
Sexual relationships	0-18	7 \pm 5
Extended family relationships	0-15	2 \pm 2.9
Social environment	0-18	5.5 \pm 5.1
Psychological distress	0-21	6 \pm 3.7
PAIS-SR total	0-138	45 \pm 19.1

SD: Standard deviation.

Table 2. Psychosocial adjustment levels of diabetic patients

Psychosocial Adjustment Level (PAIS-SR)	n	%
Well adjusted (score of <35)	42	34.4
Moderately adjusted (score between 35 and 51)	36	29.5
Poorly adjusted (score of >51)	44	36.1

($p < 0.05$). The patients who had a high education level, were self-employed, did exercise and complied with their diet, and underwent medical control for every 4-12 months had a well and moderate psychosocial adjustment. The patients' age, gender, years of diabetes, and income level did not affect their psychosocial adjustment ($p > 0.05$) (Table 3).

Table 3. The PAIS-SR Total Score of the Patients According to the Demographic Variables and the Characteristics Regarding Diabetes

Demographic variables and the characteristics regarding diabetes	n	PAIS-SR Total score	Test value
Gender [*]			
Female	78	46.2 \pm 19.2	t=1.454
Male	44	41.0 \pm 18.8	p=0.149
Income level ^{**}			
Good	14	38.0 (8-69)	$\chi^2=4.201$
Medium	64	43.5 (5-80)	p=0.122
Low	44	47.0 (12-95)	
Education level ^{**}			
Primary school	63	51.0 (5-95)	$\chi^2=17.475$
Secondary school	10	45.5 (17-70)	p=0.001
High school	19	39.5 (18-73)	
University	14	23.0 (8-80)	
Profession ^{**}			
Housewife	58	49.5 (18-95)	$\chi^2=8.006$
Retired	47	40.0 (5-94)	p=0.046
Civil servant/Worker	10	45.0 (20-80)	
Self-employed	7	37.0 (12-52)	
Frequency of medical control [*]			
1-3 months	37	43.1 \pm 17.4	F=4.856
4-12 months	46	39.1 \pm 18.1	p=0.009
>12 months	39	51.6 \pm 20.08	
Complying with the diet [*]			
Complying	58	40.5 \pm 20.2	t=-2.129
Not complying	64	47.8 \pm 17.6	p=0.001
Complying with the exercise [*]			
Complying	35	37.8 \pm 20.6	t=-2.429
Not complying	87	46.9 \pm 18.0	p=0.017
Development of hyperglycemia [*]			
Developed	22	50.9 \pm 16.9	t=1.575
Not developed	100	43.07 \pm 19.47	p=0.118
Development of hypoglycemia [*]			
Developed	41	47.65 \pm 17.93	t=1.363
Not developed	81	42.66 \pm 19.66	p=0.175
Years of diabetes [*]			
1-5 years	23	44.21 \pm 17.39	F=0.688
6-10 years	25	42.28 \pm 19.78	p=0.561
11-15 years	33	48.30 \pm 21.81	
\geq 16 years	41	42.36 \pm 17.62	
Diabetic patients' age (year)			
35-44	14	45.0 (19-66)	X=0.088
45-54	29	47.0 (12-95)	p=0.993
55-64	49	42.0 (8-82)	
65-74	30	45.0 (5-94)	

*The scale scores are shown as average \pm standard deviation.

**The scale scores are shown as mean (min.-max.).

Table 4. The relationship between the Multidimensional Scale of Perceived Social Support Scores and the PAIS-SR Adjustment Scores

		PAIS-SR Subscales							PAIS-SR Total
		Orientation to Healthcare	Vocational environment	Domestic environment	Sexual relationships	Extended family relationships	Social environment	Psychological distress	
MSPSS	r	-0.279*	-0.115	-0.238*	-0.070	-0.358*	-0.273*	-0.194*	-0.297*
	p	0.002	0.205	0.008	0.476	0.000	0.002	0.033	0.001

*: Negative relationship.

Perceived Social Support of the Diabetic Patients

The highest perceived social support of the patients came from their family (mean=24.93 according to their total score on the Multidimensional Scale of Perceived Social Support and on their family, friend, and special person subscales. This was followed by the support from friends (mean=19.48) and special person (mean=14.95). Their total score average on the Multidimensional Scale of Perceived Social Support was 59.37. A negative relationship was found between the patients' score average on the MSPSS, and on the PAIS-SR and its orientation to healthcare, domestic environment, extended family relationships, social environment, and psychological distress subscales (Table 4).

Discussion

Adjustment to the disease is of great importance, since diabetes affects all aspects of life. The diabetic patients in this study were found to moderately adjust to the disease (a score of 45 in average). They were found to have difficulty in orientation to healthcare the most, followed by the sexual relationships, vocational environment, and psychological distress. The fact that the treatment of diabetes requires changing patients' nutrition, exercising, using oral medications with various combinations, and invasive interventions such as using insulin or measuring the blood sugar is considered to be an effective factor in having difficulty in orientation to healthcare.

Of the patients, 47.5% were housewives and answered the questions on vocational life considering the difficulties they had in housework. The rate of working patients was low in this study; hence, the confusion of poor adjustment to the vocational life was probably caused by the answers of the housewives. In addition, diabetes is known to affect work performance.^[12]

In the literature, the patients were found to have difficulty in different areas in adjustment to chronic diseases. Adams (2001), in his study on patients with psoriasis, found that the most affected areas were psychosocial pressure, vocational life, and social environment.^[22] Kocaman (2007), in his study on patients with chronic diseases, observed that the most affect-

ed areas were vocational life and social environment.^[23] Akın (2003), in his study on the adjustment of patients with heart disease, revealed that the most affected areas were psychological distress, vocational life, and orientation to healthcare.^[24] Öyke (2008), in his study on patients with Behçet's disease, found the most affected area to be orientation to healthcare.^[18] Mauro (2010), in his study on monitoring the patients placed on internal cardiac defibrillator, reported that the adjustment to the sexual relationships and social life, the most affected areas, worsened and improved, respectively.^[25] The studies in the literature conducted on patients with chronic obstructive pulmonary disease (COPD) and vision loss also indicated that the patients had difficulty in adjustment in similar areas; the studies on diabetic patients showed that their adjustment reduced in all areas, particularly in sexual relationships, except for extended family relationships.^[10,19,20,26]

The best adjustment was observed to be in the extended family relationship in this study. Many other studies also found the extended family relationships to be the best adjusted area.^[10,18,23,24] On the contrary, Ramírez (2003), in his study on patients with laryngeal cancer, found the adjustment to domestic environment to be the poorest adjustment area.^[14] Another study on the patients who received radiotherapy due to cancer also found the adjustment to family/extended family relationships to be negatively affected.^[27] The better adjustment to the family/extended family relationship found in the studies conducted in Turkey than in any other country may be explained by the fact that ties with relatives are strong in Turkish families, patients receive family support, and solidarity and visit of patients are important in Turkey.^[10,18,23,24] Aydın (2005) reported that of the patients with type 2 diabetes using insulin who were included in his study, 37.1% were well adapted, 37.1% were moderately adapted, and 21.8% were poorly adapted.^[28] The findings of Aydın's (2005) study are similar to the findings of the present study. The facts that adjustment to diabetes takes a long time, diabetes affects all aspects of life, and many acute or chronic complications develop during the course of the disease make it difficult to adjust to the disease. In addition, it is thought that patients show a moderate adjustment to the disease because changing their habits and lifestyles take some time.

This study showed that age did not affect the psychosocial adjustment. The young patients were observed to have a negative adjustment in the studies conducted on diabetic patients.^[4-7] The age may have been found to be ineffective because of the fact that type 2 diabetes is observed in the middle and old ages rather than in the young population and that this study included a low number of young patients. The literature also has some studies that reported age to be ineffective in psychosocial adjustment.^[16,18,23] However, Yuet (2002) found that the elderly patients with COPD included in his study had poorer psychosocial adjustment to their disease.^[20] Mazanec (2011), in his study on the patients receiving radiotherapy, reported that elderly patients had a better adjustment compared with young patients.^[27] Hence, the available literature has different findings on the effect of age on psychosocial adjustment. These different findings may be attributed to different problems caused by the disease according to the age. In addition, the main reason of these different findings may be the fact that diseases cause more complications with age or that the deterioration of body image has more effect at young ages.

The present study showed that the education level was important for the patients to be psychosocially adjusted. The adjustment was observed to increase as the education level increased. The primary school graduates had poorer adjustment compared with the university graduates. The primary school graduates were also found to have a lower income level and poorer adjustment to diet and exercise. The poor adjustment of the primary school graduates in orientation to healthcare was considered to be caused by the inattention of these patients to their self-care. The low income level of these patients was also considered to play a significant role in this situation. Yuet (2002) also found that the low education level caused poor adjustment in patients with COPD.^[20] Akin (2006) reported that the scores of cardiac patients having a low education level on the family relationships and their total adjustment scores were affected.^[24] The findings of the present study are in line with the literature.

The retired patients were observed to have better psychosocial adjustment compared with the housewives. Öyke (2008) found that working patients with Behçet's disease had better psychosocial adjustment than patients who were not working.^[18] Ramírez (2003) observed that the psychosocial adjustment of patients who had to return to their work after laryngeal operation was poorer than the adjustments of patients who had not returned to their work.^[14] The present study shows similarity to the literature. The retired people have less worries since they have already passed many stages of life and handled issues such as family, future of their children, and vocational life. On the contrary, being a housewife is a job that never ends. The housewives are expected to

maintain the order of the house even if their age is advanced or they have some problems caused by their disease. The stress among the diabetic housewives owing to their effort to maintain the order of their house may lead to their poor adjustment in the area of psychosocial pressure.

The present study showed that the years of diabetes did not affect psychosocial adjustment. Kocaman (2007) and Öyke (2008) found that the duration of the disease did not affect patients' adjustment.^[18,23] Whittmore (2005), on the contrary, found that self-management behaviors were better reflected in daily life, and the patients were better adjusted to the disease as the years of diabetes increased.^[7] Demirtaş (2009) stated that the diagnosis period of the diabetic patients who were at the acceptance stage was at least 10 years.^[4] Elizabeth Kübler Ross' study on the psychological processes in cancer was also valid for chronic diseases. The psychological reactions shown toward chronic diseases are shock, denial, anger, bargain, depression, and acceptance/adjustment. Acceptance and adjustment are the last stages, and reaching the acceptance stage requires some time. Although the literature has different findings, a number of studies support the observation of acceptance and adjustment as a result of longer duration of diagnosis. The present study is similar to the studies of Kocaman and Öyke.^[18,23] The fact that no statistical difference was found in this study may be because the disease was not acute and took a long period of time.

The patients who underwent medical control every 4–12 months were observed to be better adjusted than those who underwent medical control every 1 year or longer. Badur (2009) found that diabetic patients who underwent regular medical controls were better adjusted to treatment.^[29] Akça Talaz (2008) found no significant difference between the frequency of medical control and the psychosocial adjustment to the disease.^[10] Undergoing regular medical controls is important for monitoring the disease, being able to control diabetes, and diagnosing the complications at an early stage. Undergoing regular medical controls is considered to enable patients to see the course of their disease with tangible data, and thus has an important effect on their cooperation with the treatment and adjustment to the disease.

Performing self-care behaviors is an indicator of psychosocial adjustment to the disease. In this study, the patients who did not comply with their diets were observed to have a poor psychosocial adjustment. Akça Talaz (2008) found that patients who did not exercise in the group that did not develop diabetic foot had poor adjustment.^[10] Neglecting self-care behaviors causes stress. Stress is a significant obstacle for adjustment to diabetes.^[30]

Existence of social support is an important factor in psychosocial adjustment to the disease. This study showed that

the patients who received social support had better psychosocial adjustment. Social support was observed to be effective in adjusting to all areas except sexual relationships according to the subareas of psychosocial adjustment. Öyke (2008) found that social support was effective in adjusting to vocational environment, domestic environment, and extended family relationships.^[18] Akimoto et al. (2004) determined the HbA1c value as a criteria to evaluate the effectiveness of education during their follow-up after the education.^[31] The HbA1c value, which was reduced after the education, was found to re-increase in patients without social support. Receiving social support is important for orientation to healthcare. The studies in the literature also showed that social support is effective in adjusting to the disease.^[18,19,20,23] The findings of the present study are similar to those in the literature.

Conclusion and Recommendations

Recommendations for Implementation

Considering that diabetic patients have a moderate psychosocial adjustment to their disease, nurses are recommended to evaluate the psychosocial adjustment of the diabetic patient, more frequently monitor the patients at risk in terms of psychosocial adjustment, and ensure that they regularly come to the institution for their medical controls. Nurses are also recommended to provide education and counseling to meet the needs of diabetic patients as a part of their roles, keeping in mind that the factors that affect psychosocial adjustment and the affected areas of psychosocial adjustment differ from patient to patient. It is recommended that the importance of diet and regular exercise be emphasized in the diabetes programs, the patients be addressed in terms of biopsychosocial aspects, and the education programs be organized so as to include psychosocial adjustment. As it is known that the patients receiving social support have better psychosocial adjustment, it is recommended that the sources of social support of diabetic patients be determined and used as a supportive factor in the adjustment of diabetic patients to their disease, and family and other sources of social support be included in the treatment, education, and monitoring processes of diabetic patients.

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