

## The Attitude of Patients with Diabetes Type 2 and the Analysis of The Correlation Between the Problem Fields

Tip 2 Diyabetli Hastaların Hastalığa Karşı Tutumları ve Problem Alanları

Arasındaki İlişkinin İncelenmesi

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### ABSTRACT

The first stage of the study, which has two stages, was carried out methodologically to evaluate the validity and reliability of the Diabetes Problem Areas Scale by adapting it into Turkish, and the second stage was carried out as descriptive in order to determine the relationship between patients' attitudes towards the disease and problem areas.

The population of the study consisted of patients who applied to the Endocrinology Polyclinic of the Department of Internal Medicine of October Atatürk University Yakutiye Research Hospital, were diagnosed with Type 2 diabetes for at least one year, were conscious and accepted the study. The sample of the study consisted of 138 patients randomly selected using the nonprobability sampling method. A form containing the socio-demographic characteristics of the patients, the Diabetes Problem Areas Scale and the Diabetes Attitude Scale were used to collect the data. Data were evaluated with cronbach alpha, pearson correlation technique and factor analysis.

In the first stage of the study, it was determined that the alpha reliability coefficient of the Problem Areas in Diabetes Scale was 0.88 and consisted of a single factor. As a result of these analyzes, it was determined that the scale has validity and reliability.

It was determined that the patients included in the study had a positive attitude towards diabetes, and the total mean score of the diabetes attitude scale was determined as 73.7±9.3. It was determined that the patients had partially serious problems in diabetes and the mean score of the scale of problem areas in diabetes was 57.0±15.1.

**Keywords:** Attitudes in Diabetes, Problem Areas in Diabetes, Type 2 Diabetes,

### ÖZ

Araştırma iki aşamalı olarak yürütülmüştür. İlk aşamada Diyabette Problem Alanları Ölçeği'nin Türkçe'ye uyarlanarak geçerlik güvenilirliğini değerlendirmek için metodolojik; ikinci aşamada ise Tip-2 diyabet hastalarının hastalığa karşı tutumları ve problem alanları arasındaki ilişkiyi belirlemek amacıyla tanımlayıcı olarak yapılmıştır.

Araştırmanın evreni Ekim Atatürk Üniversitesi Yakutiye Araştırma Hastanesi İç Hastalıkları Ana Bilim Dalı Endokrinoloji Polikliniğine başvuran, en az bir yıldır Tip 2 diyabet tanısı almış, bilinci açık ve araştırmayı kabul eden hastalar oluşturmaktadır. Araştırmanın örneklemini ise olasılıksız örneklem yöntemiyle rastlantısal olarak seçilen 138 hasta oluşturmıştır. Verilerin toplanmasında hastaların sosyo-demografik özelliklerini içeren bir form, Diyabette Problem Alanları Ölçeği ve Diyabet Tutum Ölçeği kullanılmıştır. Veriler cronbach alfa, pearson korelasyon tekniği ve faktör analizi ile değerlendirilmiştir.

Araştırmanın birinci aşamasında Diyabette Problem Alanları Ölçeğinin alfa güvenilirlik katsayısının 0.88 olduğu ve tek faktörden oluştuğu belirlenmiştir. Yapılan bu analizler sonucu ölçeğin geçerlik ve güvenilirliğe sahip olduğu belirlenmiştir.

Araştırma kapsamına alınan hastaların diyabete yönelik pozitif tutuma sahip oldukları belirlenmiş, diyabet tutum ölçeği toplam puan ortalaması 73.7±9.3 olarak saptanmıştır. Hastaların diyabette kısmen ciddi problem yaşadıkları ve diyabette problem alanları ölçek puan ortalamasının 57.0±15.1 olduğu bulunmuştur.

**Anahtar Kelimeler:** Diyabette Problem Alanları Diyabette Tutum, Tip 2 Diyabet.

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## INTRODUCTION

The changing disease patterns with the increase in the level of development in the world and in our country have led to a transformation in the incidence of chronic diseases and infectious diseases. Nutritional habits, living conditions, inactivity, stress and environmental factors have increased the morbidity and mortality of some chronic diseases.<sup>1</sup>

The World Health Organization and the International Diabetes Federation recognize diabetes mellitus as one of the most important public health problems of the next millennium.<sup>2-4</sup>

In the statistics published by the International Diabetes Federation (IDF) in 2019, it was reported that approximately 463 million people, 9.3% of the world population aged 20-79, have diabetes. Considering that this figure is even higher than the figure predicted by international authorities for 2030, and that 374 million people have impaired glucose tolerance and have prediabetes, it makes us think that this epidemic will increase over the years. In addition, it is estimated that Turkey, which currently ranks first in Europe with a diabetes prevalence of 11.1%, will be one of the 10 countries in the world where the highest number of people with diabetes will live in 2045.<sup>4</sup>

In chronic diseases such as diabetes, in order to prolong the life expectancy and increase the quality of life, it is necessary for the individual to make changes in his lifestyle and habits and to comply with the treatment.<sup>5</sup> In order for diabetic patients to perform their daily diabetes management successfully; It is necessary for them to have positive attitudes in order to transform the knowledge about diabetes and the information they receive into behavior.

Attitudes and behaviors of patients about their own health form the basis of diabetes treatment.<sup>6</sup>

Attitudes and behaviors of patients regarding their own health, especially their own treatment, form the basis of diabetes treatment. Effective management and control of type 2 diabetes requires behavioral adaptation.

It has been determined that there is a significant relationship between the beliefs and attitudes of individuals about the disease and the behavioral compliance defined for the necessity of treatment.<sup>7</sup> An individual with diabetes who thinks that the type of diabetes they have is milder than other types of diabetes and does not care about their disease cannot be motivated to learn.

Accommodating attitudes for long-term emotion, belief and shopping information that these viewpoints can enter their room from these women. One is placement problems. The attitudes of these students Identifying important problems in your life.

The first issue to be addressed in such a patient should be attitudes. Attitudes of patients significantly affect diabetes care.<sup>8</sup> Studies show that individuals with positive attitudes have better.

Glucose control, self-care skills, and knowledge about diabete.<sup>9-10</sup> These results indicate that the evaluation of individuals' attitudes towards care and treatment and the identification of problem areas can be used to control the disease. and shows how important it is in its management.<sup>10</sup>

This study was conducted to examine the relationship between the attitudes of diabetic patients towards the disease and their problem areas.

## MATERIAL AND METHOD

### Type of Research

This research was carried out in two stages. In the first stage of the study, the Diabetes Problem Areas Scale (DPAS) was adapted into Turkish and its language validity was evaluated. In this respect, the methodological research model was used in the first stage of the study. In the second stage, it was conducted as a descriptive study in order to examine the relationship between the attitudes of patients with Type 2 diabetes towards the disease and their problem areas.

### Research Design and Samples

The population of the study consisted of patients with type 2 diabetes who went to the Endocrinology outpatient clinic between the specified dates and were diagnosed at least one year ago.

The sample of the study consisted of 138 patients determined by power analysis. In the power analysis, the level of significance was 0.05, the confidence interval was 0.95, the effect size was 0.7, and the representativeness of the universe was 95%. The improbable random sampling method was used to sample the patients from the population. In adapting a scale to another culture, at least 5-10 times the number of items in the scale should be reached.<sup>11</sup> For the 20-item DPAS, more than six times the number of scale items were reached.

### Personal Information Form

The personal information form containing the introductory characteristics of the patients was developed by the researcher in line with the relevant literature.<sup>12, 13</sup> In this form, there are questions about the patients' age, gender, marital status, educational status, occupation, family type, health insurance, diagnosis time, family history of diabetes, smoking and alcohol use, and body mass index.

### Diabetes Attitude Scale

The Turkish adaptation of the DAS, which was developed by the National Diabetes Commission in the USA, and its validity and reliability study were carried out by Özcan.<sup>14</sup>

In the study of Özcan et al., the test-repeat correlation coefficients of the subgroups were between 0.52-0.93, and Cronbach's Alpha values were between 0.61-0.93. The correlations of the subgroups with the total score of the scale were evaluated and it was seen that it was between 0.39-0.94 limits. Correlation of scale items with scale total score is between 0.38-0.80. As a result, correlation coefficients in validity-reliability procedures were found to be greater than 0.30, and test-retest and Cronbach Alpha values were found to be high in general.

7 subgroups covered by DAS; need for special education, attitude towards patient compliance, severity of non-insulin dependent diabetes (NIDDM), blood glucose control and complications, impact of diabetes on patient's life, attitude towards patient autonomy and attitude towards team care. The number of items in the subgroups ranged from 3 to 7. Scale items were scored with a Likert type scoring ranging from 1 to 5. Questions 5,6,12,18,23,24 were evaluated as negative, other questions were evaluated as positive. A score of >3 indicates a positive attitude, a score of ≤3 indicates a negative attitude, and an increase or decrease in the score strengthens the attitude in that direction. In this study, the Cronbach's  $\alpha$  reliability coefficient of the DAS was found to be 0.75

### The Scale of The Problem Areas in Diabetes Turkish Form

PAID was developed by Polonsky and et al.<sup>14</sup> in Boston in 1995. The scale was developed in English and later translated into Spanish, Japanese, German, Chinese, Korean and Spanish. This Likert type scale was developed to measure the problem areas of patients in diabetes. It is required to mark one of the 20 statements of the scale as "no problem=0", "some problem=1", "moderate problem=2", "less serious problem=3" and "serious problem=4". The score given for each item is taken as a basis and the raw score is multiplied by 1.25 to obtain the actual score. Thus, a minimum of 0 and a

maximum of 100 points can be obtained from the scale. An increase in the total score obtained from the scale indicates that the severity of the problems experienced by the patient has increased. The validity and reliability of the PAID developed by Polonsky et al.<sup>14</sup> were made and the Cronbach's  $\alpha$  reliability coefficient was determined as 0.90. In this study, the Cronbach's  $\alpha$  reliability coefficient of the scale was found to be 0.88.

### **Validity and Reliability of the PAID Turkish Form**

The validity and reliability of the Turkish version of the PAID was made through the literature on the subject and the opinions of experts on this subject.<sup>15</sup>

### **Language Validity of PAID**

At this stage of the research, expert opinion was sought regarding the language validity of the scale, and it was adapted into Turkish by making necessary arrangements in line with the opinions received.

### **Internal Consistency**

Item total score correlations and Cronbach's  $\alpha$  reliability coefficient were used in the internal consistency control of the scale. The item-total score correlation indicates whether each item in the scale can be added in the

scale.<sup>16</sup> Cronbach's  $\alpha$  reliability coefficient is an indicator of the internal consistency and homogeneity of the items in the scale. The higher the Cronbach's  $\alpha$  reliability coefficient of the scale, the more consistent the items in the scale are, and it shows that they consist of items that examine the items of the same feature. The reliability coefficient, which can be considered sufficient in a Likert-type scale, should be as close to 1 as possible.<sup>15</sup>

In the literature, item-total score correlations above 0.25 and Cronbach's  $\alpha$  reliability values greater than 0.50 were determined as expected limits for confirming the internal consistency of the scales.<sup>16</sup>

### **Variables of the Study**

**Dependent Variables:** The dependent variables of the study are the scores of the PAID and DAS scales.

**Independent Variables:** The independent variables of the study are the descriptive and various characteristics of the patients.

### **In Evaluation of Data**

In the analysis of the factor structure of PAID; Factor Analysis, Barlett Test, Kaiser-Meyer Olkin Test internal consistency of PAID; Cronbach's  $\alpha$  reliability coefficient item-total score analysis of PAID; Pearson Product Moments Correlation in the examination of the relationship between the descriptive characteristics of the patients and the mean scores of DAS and PAID; Number-percentage, t-test, Kruskal Wallis, Mann Mann Whitney U test and Correlation were used.

### **Ethical Approval**

The purpose of the research and what they should do were explained to the individuals who will participate in the research, and the informed consent condition was fulfilled as an ethical principle. Given the willingness of the patients to be included in the study due to the necessity of giving the answers voluntarily, it was explained that they were free to participate in the study or not, and their verbal consent was obtained.

Permission was obtained from the author for the adaptation of the PAID, which was first developed by Polonsky et al.<sup>14</sup> into Turkish.

Necessary permission was obtained from the relevant institution to conduct the research. In addition, the thesis proposal was presented to the Ethics Committee of Atatürk University Health Sciences Institute and Ethics Committee approval was obtained for there search.

## RESULTS AND DISCUSSION

The findings of the research are presented in two parts. In the first part: The findings regarding the validity and reliability of the Turkish version of the Diabetes Problem Areas Scale are presented. In the second part, findings related to the relationship between attitudes and problem areas of patients with diabetes are given.

### Findings Regarding the Validity and Reliability of the Turkish Version of the PAID

In order to evaluate the content validity of the PAID Turkish form, the scale was translated from English to Turkish by specialists consisting of English-speaking nurses, physicians and linguists. Each item was examined by taking into account the criticism of the experts and necessary corrections were made. Then, a back translation of the scale was made by an English linguist who knew both languages well. At the end of the comparisons, it was determined that there was no change in meaning and the language validity of the scale was confirmed. Language equivalency provided PAID Item-total correlation coefficients and Cronbach Alpha reliability coefficient were calculated to examine the internal consistency of the Turkish version, and Kaiser-Meyer Olkin Measure (KMO) of Sampling Adequacy and Bartlett's Test of Sphericity values were calculated for the adequacy of the sample, and then the factor structure of the PAID was examined. The item-total score correlation of the scale ranged from  $r = 0.375$  to  $0.710$  (Table 1).

**Table 1. PAID Item-Total Score Correlation Coefficients**

Articles of PAID	Correlation Value
1. To what extent is it a problem for you to have clear goals for your diabetes treatment?	0.398
2. What level of discouragement is a problem for you with your diabetes treatment plan?	0.613
3. At what level is it a problem for you to feel fear when you think you are living with diabetes?	0.632

**Table 1. (Continue)**

4. What level of problem are disturbing social situations related to diabetes care (what others say about your diet, etc.) for you?	0.614
5. At what level is it a problem for you that you feel the lack of food?	0.554
6. At what level is it a problem for you to feel depressed when you think you are living with diabetes?	0.493
7. At what level is it a problem for you that others don't know your feelings and moods about your diabetes?	0.618
8. To what extent is it a problem for you to be overwhelmed by your diabetes?	0.648
9. To what extent are your concerns about your low blood sugar findings a problem for you?	0.375
10. To what extent is it a problem for you to get angry when you think you are living with diabetes?	0.495
11. At what level is it a problem for you that you feel intense anxiety about meals and food?	0.467
12. What extent are possible serious complications and concerns your future a problem for you?	0.445
13. At what level is it a problem for you to feel guilt and anxiety when you let go of the rules and things you need to do in the treatment of diabetes?	0.653
14. What level of problem is it for you that your illness is not accepted?	0.597
15. At what level is your dissatisfaction with your doctor a problem for you?	0.375
16. At what level is the thought of diabetes draining a large amount of your energy physically and mentally challenging for you every day?	0.628
17. To what extent is it a problem for you to feel lonely because of your diabetes?	0.710
18. At what level is the thought of not getting support from your family and friends in your efforts regarding your diabetes care and treatment a problem for you?	0.606
19. At what level is it a problem for you to cope with the complications of diabetes?	0.571
20. To what extent is it a problem for you that you feel burnout because the treatment and care of diabetes requires constant effort?	0.655

The basic qualifications sought in a good measurement tool are the validity and reliability of the scale. Validity is the degree to which the thing to be measured can be measured.<sup>17</sup> The first condition for a measurement to be considered valid is reliability. Reliability is a concept that reveals the consistency of all questions in a measurement tool with each other and the homogeneity in measuring the problem being addressed.<sup>18</sup>

There are many criteria for testing validity. In this study, content-scope validity and construct validity were examined in order to test the validity of the scale. The item-total score (item dropout) correlation was used to evaluate the relationship between each item score of the scale and the total item score, and whether each item of the scale is equally weighted. It was found that  $r = 0.375 - 0.710$ . In the literature, it is reported that if the item total correlation coefficient is 20 and above, and if the correlation values and significance levels are sufficient, the item is good, and as the correlation value increases, the effectiveness of the item increases.<sup>18</sup> In the study, since the item-total correlation values had sufficient value, they were applied without removing any items. Cronbach's alpha reliability coefficient was calculated as an indicator of the internal consistency and homogeneity of the PAID. Cronbach's alpha of PAID reliability coefficient was found to be 0.88. This finding shows that the scale is a highly reliable scale with internal consistency. Polonsky et al.<sup>14</sup> found the Cronbach's  $\alpha$  coefficient as 0.90 in their study evaluating the validity and reliability of the original scale (PAID). Regarding the alpha coefficient of the scale, the results obtained from the study are similar to the results obtained by Polonsky et al.<sup>14</sup> In the light of this information, it can be said that the internal consistency and homogeneity of the Turkish version of the PAID is sufficient.

### PAID Cronbach Alpha Confidence Coefficient

As an indicator of the internal consistency and homogeneity of the PAID, the Cronbach Alpha reliability coefficient was examined.

The Cronbach Alpha reliability coefficient of the scale was determined as 0.88. An average of  $45.63 \pm 12.15$  points was obtained from the PAID. The sub-total value marked on the scale was 11 and the upper-total value was 77. (Table 2).

**Table 2. Distribution of Cronbach Alpha Reliability Coefficient and Mean Scores of PAID**

Scale	PAID
N	138
Cronbach Alpha reliability coefficient	0.88
The lower and upper values of the scale	0-100
Checked lower and upper values	11-77
<b>X <math>\pm</math>SD</b>	<b>45.63 <math>\pm</math>12.15</b>

### Factor Structure of PAID

Before examining the factor structure of the PAID to evaluate whether the sample is adequate for factor analysis, KMO and 'Barlett's Test of Sphericity' (sample test size) to evaluate whether the analyzes were applied.

Before examining the factor structure of the PAID, sample adequacy and test size of the sample were tested. KMO is an index that compares the magnitude of observed correlation coefficients with the magnitude of partial correlation coefficients. KMO criterion 0.90 - 1.00 excellent, 0.80 - 0.89 very good, 0.70 - 0.79 good, 0.60 - 0.69 moderate, 0.50 - 0.59 weak, and below 0.50 unacceptable.<sup>18</sup> KMO test result 0.797 and 1064.160 as a result of Barlett's Test, and both test results were found significant at the  $p < 0.001$  level (Table 3). The value found in the KMO test server showed that the sample size was sufficient for factor analysis and the Barlett's test result showed that the scale was suitable for factor analysis.

**Table 3. Kaiser-Meyer Olkin Measure of Sampling Adequacy ve Barlett's Test of Sphericity Test Results**

Tests	Results
KMO	0.797 P=0.001
Bartlett's Test	1064.160

Another criterion for testing validity is construct validity. "Factor Analysis" was of the PAID. The purpose of factor analysis; is the reduction of the number of items in the scale into subgroups. Items measuring the same factor come together to form various groups. Each factor group is called a factor according to the characteristics of the items in it.<sup>19</sup> When the factor structure of the PAID was examined, a factor with an Eigenvalue exceeding 1 was obtained.

conducted to determine the construct validity

The fact that most of the items were collected in the first factor, which explained 32.23% of the total variance, shows that the scale has a single factor.<sup>20</sup> This finding, obtained as a result of the factor analysis, is supported by the finding that Polonsky et al.<sup>14</sup> stated that the original scale was also single-factorial.

**Table 4. Factor Structure and Explained Variance of PAIN**

Articles of PAID	Factor 1
1. To what extent is it a problem for you to have clear goals for your diabetes treatment?	.393
2. What level of discouragement is a problem for you with your diabetes treatment plan?	.631
3. At what level is it a problem for you to feel fear when you think you are living with diabetes?	.645
4. What level of problem are disturbing social situations related to diabetes care (what others say about your diet, etc.) for you?	.603
5. At what level is it a problem for you that you feel the lack of food?	.530
6. At what level is it a problem for you to feel depressed when you think you are living with diabetes?	.488
7. At what level is it a problem for you that others don't know your feelings and mood about your diabetes?	.620
8. To what extent is it a problem for you to be overwhelmed by your diabetes?	.660
9. To what extent are your concerns about your low blood sugar findings a problem for you?	.356
10. To what extent is it a problem for you to get angry when you think you are living with diabetes?	.483
11. At what level is it a problem for you that you feel intense anxiety about meals and food?	.423
12. What extent are possible serious complications and concerns your future a problem for you?	.436
13. At what level is it a problem for you to feel guilt and anxiety when you let go of the rules and things you need to do in the treatment of diabetes?	.659
14. What level of problem is it for you that your illness is not accepted?	.603
15. At what level is your dissatisfaction with your doctor a problem for you?	.340
16. At what level is the thought of diabetes draining a large amount of your energy physically and mentally challenging for you every day?	.652
17. To what extent is it a problem for you to feel lonely because of your diabetes?	.725
18. At what level is the thought of not getting support from your family and friends in your efforts regarding your diabetes care and treatment a problem for you?	.624
19. At what level is it a problem for you to cope with the complications of diabetes?	.579
20. To what extent is it a problem for you that you feel burnout because the treatment and care of diabetes requires constant effort?	.677
12. What extent are possible serious complications and concerns your future a problem for you?	.340

**Table 4. (Continue)**

13. At what level is it a problem for you to feel guilt and anxiety when you let go of the rules and things you need to do in the treatment of diabetes?	.652
14. What level of problem is it for you that your illness is not accepted?	.725
15. At what level is your dissatisfaction with your doctor a problem for you?	.579
16. At what level is the thought of diabetes draining a large amount of your energy physically and mentally challenging for you every day?	.677
<b>Self-worth (Eigen Value)</b>	6.44
<b>Total Variance Explained %</b>	32.23

"Principal Component Analysis" (principal components) method was used to determine the factor structure of PAID and analyzes were made according to the 'Varimax' transformation. Since there are no significant changes in the factor loads, and also to examine whether the variance to be explained corresponds to 1 and whether the variables are aggregated or not, the 'Principal Component' method and the 'Varimax' rotation method were preferred. The findings related to the explanation of the items and the total variance and factor loadings as a result of the analysis are given in Table 4. When Table 4 is examined, a factor with a baseline eigenvalue above 1 and explaining 32.23% of the total variance was found.

### The Relationship Between Attitudes and Problem Areas of Diabetic Patients in Diabetes

In the distribution of the introductory characteristics of the patients included in the study, it was determined that the mean age of

the patients included in the study was  $48.58 \pm 12.39$ , 55.8% were female, and 55.8% of these patients were primary school graduates. When the marital status of the patients was examined, it was determined that 71.7% were married and 44.2% were self-employed. When the social security status of the patients was examined, it was determined that 96.4% were affiliated with the Pension Fund and 58.7% had a nuclear family. When the duration of the disease was examined, it was determined that 51.4% of the patients had diabetes for more than 10 years and 39.9% of these patients did not have a family history of diabetes. According to BMI, 56.5% of the patients were found to be slightly obese.

**Table 5. Mean Scores of Patients from DAS and PAID (n=138)**

Scales	Lower value	Upper value	X ± SD
Special Education Requirement	7.0	20.0	14.9 ± 2.7
Attitude Towards Patient Compliance	6.0	22.0	13.2 ± 2.1
The Severity of Non-Insulin-Dependent Diabetes	3.0	12.0	7.7 ± 2.4
Blood Glucose Control and Complications	4.0	16.0	8.6 ± 2.2
The Effect of Diabetes on the Patient's Life	5.0	20.0	10.1 ± 3.4
Attitude to Patient Autonomy	5.0	15.0	10.6 ± 1.8
Attitude to Team Care	4.0	15.0	8.2 ± 1.6
<b>DAS Total</b>	39.0	99.0	73.7 ± 9.3
<b>PAID</b>	13.7	96.2	57.0 ± 15.1

It was determined that the patients had a positive attitude towards diabetes. The subgroup with the strongest positive attitude is the "Special Educational Needs" subgroup (Table 5). In this subgroup, patients' attitudes are questioned about diabetes team members receiving special education about diabetes and its management. Patients want the members of the healthcare team involved in their treatment, care, education and counseling to be equipped with special knowledge and skills in this regard. In studies conducted by other researchers, the highest score was obtained in this subgroup.<sup>21-24</sup> It is stated that the results will create an impetus for the improvement and continuity of the training programs organized for the members of the healthcare team. The subgroup with the lowest score is the "Severity of Non-Insulin-Dependent Diabetes" subgroup. The questions in this subgroup are about insulin. Patients with diabetes tend to care less about non-insulin dependent diabetes. Being dependent on insulin means worsening of the disease, or it may arise from the belief that insulin will further limit patients' lives and other people will treat the patient differently. In the study of Kartal et al.<sup>23</sup>, the strongest positive attitude was found in the "Special Education need" sub-dimension, and the weakest positive attitude was in the "Severity of Non-Insulin-Dependent Diabetes" sub-dimension. In the study of Peyrot et al.<sup>24</sup>, patients attitudes towards insulin were examined and the attitudes that cause resistance to insulin use are listed as follows. Beliefs have emerged that insulin will cause hypoglycemia, weight gain and the development of complications, that patients' lives will be further limited due to insulin, and that insulin will not make a difference in the control of the disease. In the same study by Peyrot et al.<sup>22</sup>, it was determined that American patients believed less in insulin efficacy than patients in all other countries (Germany, Japan, Scandinavian countries, Spain). In the study conducted by Johnson and Whetstone<sup>25</sup>, the highest score was found in the special education need, attitude towards patient autonomy subgroups, and a low score occurred in the severity of Type 2

diabetes subgroup. The results of this study are similar to the results of the studies given. The total mean score of PAID was found to be  $57.04 \pm 15.19$  this finding shows that patients have partially serious problems with diabetes. It was thought that the result of the patients' positive attitudes towards diabetes may have been affected in this way.

There is a negative correlation between the special education needs of the patients and their problem areas ( $p < 0.05$ ). It was determined that there was a negative correlation between the blood glucose control and complications, the effect of diabetes on the patient's life and the attitude towards diabetes and the problem areas of the patients ( $p < 0.01$ ). As the severity of the problems they experience increases, patients want the healthcare team members who take part in their own treatment, care, education and counseling to be equipped with special knowledge and skills in this regard. This may be due to the fact that patients think that the health service they receive and the education level of the service providers are sufficient as long as they do not experience serious problems. A negative correlation was found between the sub-dimensions of "Blood Glucose Control and Complications" and "The Impact of Diabetes on the Life of the Patient" and PAID ( $p < 0.001$ ). It was found that as the severity of the problems experienced by the patients increased, the negative attitude about blood glucose control and complications and the effect of diabetes on their lives increased. It was determined that there was a negative correlation between the DAS total score and the PAID total score ( $p < 0.001$ ). It was found that as the severity of the problem experienced by the patients increased, the attitude towards the disease increased negatively. Patients with diabetes are usually hospitalized because of poor glycemic control and complications.<sup>25</sup> Lack of knowledge about the disease and future concerns affect the attitudes of individuals negatively. This result may be due to the low education level of the patients included in the study.

## CONCLUSION AND RECOMMENDATIONS

As a result of the first phase of the study, which was conducted to examine the relationship between the attitudes of patients with type 2 diabetes towards the disease and their problem areas: It was determined that the validity and reliability of the PAID were ensured as a result of the statistical analyzes and that it could be used in Turkish society. It was determined that the patients had a positive attitude towards diabetes. It was determined that the patients needed special education. It was determined that patients who did not use insulin did not take the disease seriously. As the problems of the patients included in the study increase, their need for special education also increases. As the problems of the patients decrease, glucose control and complications are affected positively and the effect of diabetes on the patient's life decreases.

### In line with these results;

- The application of the PAID, which was adapted to Turkish by verifying its validity

and reliability, on larger groups and different cultures, thus investigating the invariance of the scale,

- Retesting the PAID with variables that may affect the problem areas of the patients (age, gender, educational status, socio-economic status, etc.),
- The use of PAID in nursing research to identify problem areas of patients with diabetes,
- Determining negative attitudes by evaluating patients' attitudes towards diabetes,
- Organizing planned education programs to improve diabetes attitudes by correcting negative attitudes in the planning of individual care,
- It may be recommended to re-examine the relationship between PAID and DAS in large sample groups with different characteristics.

## REFERENCES

1. Erdoğan, G. ve Coşansu, G. (2021). "Diyabet Risk Farkındalığı: Bir Metropol Örneği". *Sürekli Tıp Eğitimi Dergisi*, 30, 307-316.
2. Coşansu, G. (2015). "Diyabet: Küresel bir salgın hastalık". *Okmeydanı Tıp Dergisi*, 31, 1-6.
3. WHO. (2016). "Küresel diyabet raporu" <http://www.who.int/diabetes/global-report/en/> (Erişim Tarihi:23.02.2022).
4. IDF. (2019). "Diyabetes Atlası" <https://diabetesatlas.org/> (Erişim Tarihi:23.02.2022).
5. Kaynak, İ. ve Polat, Ü. (2017). "Diabetes mellitus' lu hastaların tamamlayıcı ve alternatif tedavileri kullanma durumları ve diyabet tutumları ile ilişkisi". *Genel Tıp Dergisi*, 27, 1.
6. Şahin, Z.A. (2015). "Tip 2 diyabetli hastaların, hastalığa karşı tutumu ve problem alanları arasındaki ilişki". *ODÜ Tıp Dergisi*, 1, 2
7. Azimah, M, Radzniwan, R, Zuhra, H. and Khairani, O. (2010). "Have we done enough with diabetic education? A pilot study". *Malaysian family physician: the official journal of the Academy of Family Physicians of Malaysia*, 5, 24.
8. Skinner, T.C, Khunti, K, Carey, M.E, Dallosso, H, Heller, S. and Davies, M.J. (2014). "Stability and predictive utility, over 3 years, of the illness beliefs of individuals recently diagnosed with Type 2 diabetes mellitus". *Diabet Med*, 1, 1260-1263.
9. Alyami, M, Serlachius, A, Mokhtar, I. and Broadbent, E. (2021). "Longitudinal Associations Between Illness Perceptions and Glycemic Control in Type 2 Diabetes". *Int J Behav Med*, 1-10.
10. Fisher, L, Polonsky, W.H, Hessler, D. and Potter, M.B. (2017). "A practical framework for encouraging and supporting positive behaviour change in diabetes". *Diabet Med*, 34, 1658-1666.
11. Çapık, C, Gözümlü, S. ve Aksayan, S. (2018). "Kültürlerarası ölçek uyarlama aşamaları, dil ve kültür uyarlaması: Güncell, nmiş rehber". *Florence Nightingale Journal of Nursing*, 26, 199-210.
12. Ustaalioglu, S. ve Mehtap, T. (2017). "Tip 2 diyabetli hastaların bakım ve tedaviye yönelik tutum ve davranışlarının incelenmesi". *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi*, 6, 12-20.
13. Karaca Sivrikaya, S. (2006). "Tip 2 Diyabetes Mellitus Hastalarına Verilen Planlı Eğitimin Hastaların Tutumlarına, İyilik Hallerine Ve Metabolik Kontrol Değişkenlerine Etkisi". *Atatürk Üniversitesi Sağlık Bilimleri Enstitüsü. Erzurum.*
14. Özcan, Ş. (1999). "Diyabetli hastalarda hastalığa uyumu etkileyen faktörlerin değerlendirilmesi". *İÜ Sağlık Bilimleri Enstitüsü, İstanbul.*
15. Erefe, İ. (2002). "Veri toplama araçlarının niteliği. Hemşirelikte Araştırma İlke Süreç ve Yöntemleri". *Odak Ofset, Ankara* 133-138.
16. Akgül, A. (2003). "Tıbbi araştırmalarda istatistiksel analiz teknikleri SPSS uygulamaları" [Statistical analysis techniques for medical research-SPSS applications].
17. Ercan, İ. ve İsmet, K. (2004). "Ölçeklerde güvenilirlik ve geçerlik". *Uludağ Üniversitesi Tıp Fakültesi Dergisi*, 30, 211-216.

18. Akgül, A. (2005). "Tıbbi araştırmalarda istatistiksel analiz teknikleri: SPSS uygulamaları". Baskı. Yükseköğretim kurulu matbaası.
19. Gurbetoğlu, A. (2018). "Bilimsel araştırma yöntemleri". Erişim Adresi: [http://agurbetoglu.com/files/2%20ARA%C5%9ETIRMA%20\(Erişim Tarihi:23.02.2022\)](http://agurbetoglu.com/files/2%20ARA%C5%9ETIRMA%20(Erişim%20Tarihi:23.02.2022)).
20. Özdemir, Z. (2018). "Sağlık bilimlerinde likert tipi tutum ölçeği geliştirme". Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi, 5, 60-68.
21. Ustaalioglu, S. ve Tan, M. (2017). "Tip 2 diyabetli hastaların bakım ve tedaviye yönelik tutum ve davranışlarının incelenmesi". Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi, 6, 12-20.
22. Hjeltn, K, Bard, K, Nyberg, P. and Apelqvist, J. (2003). "Religious and cultural distance in beliefs about health and illness in women with diabetes mellitus of different origin living in Sweden". International Journal of Nursing Studies, 40, 627-643.
23. Kartal, A, Çağırın, G, Tiğli H, Güngör, Y, Karakuş, N. ve Gelen M. (2008). "Tip 2 diyabetli hastaların bakım ve tedaviye yönelik tutumları ve tutumu etkileyen faktörler". TSK Koruyucu Hekimlik Bülteni, 7, 223-230.
24. Peyrot, M, Rubin, R.R, Lauritzen, T, Skovlund, S.E, Snoek, F.J, Matthews D.R, Landgraf R.D, Kleinbreil, L. and Panel, I.D.A. (2005). "Resistance to insulin therapy among patients and providers: results of the cross-national Diabetes Attitudes, Wishes, and Needs (DAWN) study". Diabetes Care, 28, 2673-2679.
25. Bahar, A. ve Sertbaş, G. (2006). "Diabetes mellituslu hastalarda yaşam kalitesi ve yetiyitimi". Sağlık ve Toplum, 16, 29-39.