

Attitudes of Children with Diabetes Toward Their Disease

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Abstract

Background: In order to enable children with type 1 diabetes to live in harmony with their disease, it is necessary to become better acquainted with the attitudes developed by such children toward their condition.

Objectives: This study was conducted to determine the attitudes of children with type 1 diabetes toward their disease, as well as to determine the factors that affect those attitudes.

Patients and Methods: This descriptive study was conducted in the pediatric endocrinology polyclinics of two hospitals in eastern Turkey between September 2013 and June 2014. The study population consisted of 150 children with diabetes who were registered at the pediatric endocrinology polyclinics. Without using a sampling method, the study was conducted with 104 diabetic children. The children's introductory form and the child attitude toward illness scale were used to collect data for the study. To evaluate the data and determine the relevant percentages and means, an independent samples t-test, the Mann-Whitney U test, the Kruskal-Wallis test, and Cronbach's alpha coefficient were used.

Results: It was determined that 58.7% of the children were aged 13 - 18 years, 56.7% were female, and 45.2% had received education to the ninth to twelfth grade level. The conditions that affected the children's attitudes toward their disease were whether or not they had social security, their mothers' education level, their mothers' working conditions, their fathers' education level, and whether or not members of their immediate family also had diabetes ($P < 0.05$). Other factors affecting their attitudes were the frequency of having to measure their blood glucose, how much the disease affected their daily activities, and their level of knowledge about their disease ($P < 0.05$).

Conclusions: This study revealed that children with type 1 diabetes had neutral attitudes (i.e., neither a positive nor a negative attitude) toward their disease, which were affected by certain variables.

Keywords: Attitude, Child, Nurse, Type 1 Diabetes

1. Background

Diabetes mellitus (DM) is caused by a deficiency in insulin synthesis and it is the most common endocrine disease in childhood (1, 2). Type 1 diabetes is generally observed in childhood due to a deficiency in insulin production that arises from the destruction of the pancreas islets. Patients with type 1 diabetes constitute 10% - 15% of all DM patients (3). Type 1 diabetes can be encountered in children of any age, although it frequently develops between the ages of 7 and 15 years (4). This can be due to higher exposure to infectious agents as a result of starting school, an increase in insulin-antagonistic hormones during puberty (gender steroids, growth hormone), or mental stresses during puberty (5, 6). The prevalence of the disease increases at an approximate rate of 3% - 6% every year, meaning that type 1 diabetes is one of the most important chronic diseases affecting community health today (1).

Type 1 diabetes is a serious health problem that requires changes in lifestyle, causes damage to various organs and systems of the body in the long term, decreases

individuals' quality of life by causing functional losses, and impacts individuals, families, and society due to both high treatment expenses and labor force losses (7).

An individual's attitude is his/her tendency to exhibit either a learned positive or negative reaction to a certain object, situation, concept, or person (8-11). It has been recognized that positive and negative attitudes can affect the course of a chronic disease (12).

Chronic diseases affect the functions of the child (13). The child's feeling and attitude regarding having a chronic disease may affect his/her coping skills and ability to comply with the disease. Previous studies have revealed that children who exhibit negative feelings and approaches related to having a chronic disease displayed more incompatible behaviors than children with positive feelings and approaches toward having a chronic disease (12). In a study conducted with diabetic children, it was determined that children who displayed a positive attitude toward the disease were better able to control their diabetes (14).

In order to enable children with a chronic illness to live in harmony with their disease, it is necessary to be-

come better acquainted with the attitudes developed by such children toward their condition (15, 16). Having a negative attitude toward the disease has been recognized as a risk factor in the development of psychological problems (16, 17).

Pediatric nurses approach children and their families as a whole, and they play the primary role in planning the necessary precautions and arrangements by determining the attitudes developed by the children and their families toward the relevant chronic disease. This planning involves basic functions such as helping the children and their families to cope with the disease, providing relevant training, and supporting psychosocial adaptation to the disease (1).

2. Objectives

A review of the relevant literature indicated that there have been only a limited number of studies regarding patients' attitudes toward chronic diseases. Based on the idea that determining the attitudes of children with type 1 diabetes toward their disease may enable them to better comply with the disease, as well as allowing for the provision of more appropriate care, this study was conducted to identify the attitudes of children with type 1 diabetes and to determine the factors that affect those attitudes.

3. Patients and Methods

3.1. Study Population

This descriptive study was conducted in the pediatric endocrinology polyclinics of a university hospital and a training-research hospital in Erzurum, Turkey, between September 2013 and June 2014. The study population consisted of 150 children with type 1 diabetes who were registered at the pediatric endocrinology polyclinics of the two aforementioned hospitals and who regularly attended those hospitals. Without using a sampling method, the study was conducted with 104 children with type 1 diabetes who were aged 9 - 18 years, who were educated to at least the 3rd grade of primary school level, who had been diagnosed with type 1 diabetes at least six months earlier, and who had no mental problems.

3.2. Data Collection

The children's introductory form and the child attitude toward illness scale were used to collect data for the study.

3.2.1. Children's Introductory Form

This tool was developed by the researcher based on the findings of the literature (7, 15). The form included introductory questions about the children (each child's age, sex, class, perception of success in school, longest place of residence, family type, social security of the family, income of the family) and their families (the mother's age, education level, and work status; the father's age, education level, and profession), as well as questions relating to the children's experiences of their disease (age at which the disease developed, diabetes in their immediate family, hospitalization, measuring the blood glucose, family support, level of knowledge about their disease, effect on daily activities) and questions concerning insulin treatment (using insulin, useful lifetime of insulin, regular use of insulin, person administering the insulin, any side effects of the insulin, forgetting to use insulin).

3.2.2. Child Attitude Toward Illness Scale (CATIS)

This scale was developed in 1993 by Austin and Huberty (16) in order to evaluate the attitudes developed by children with a chronic disease toward their condition. Its validity in Turkish was confirmed by Ersun and Bolisik (18) in 2010. The child attitude toward illness scale was designed to be a self-report scale that could be independently filled out by children with a chronic disease who were aged nine-years-old or above and who were in the third grade of primary education. Using a five-point Likert evaluation method, the scale involves 13 items. The mean score of the items that measure the attitudes developed by children toward their chronic disease varies between 1 and 5, where 1 and 2 signify a negative attitude, 3 signifies a neutral attitude, and 4 and 5 signify a positive attitude (18). The Cronbach's alpha coefficient of the scale was determined to be 0.79 by Ersun and Bolisik (18). However, in this study the Cronbach's alpha coefficient of the scale was determined to be 0.86. This value shows that the scale has a high level of reliability.

The questions on the children's introductory form were read to the children by the researcher and then completed in approximately 10 minutes. The researcher introduced the child attitude toward illness scale to the children, and they then independently filled out the scale in approximately 10 minutes.

3.3. Statistics

To assess the data and determine the relevant percentages and means, the independent samples t-test, the Mann-Whitney U test, the Kruskal-Wallis test, and the Cronbach's alpha coefficient calculation were used. The results were evaluated at a confidence interval of 95% and a significance level of $P < 0.05$.

3.4. Ethical Considerations

In order to comply with all relevant ethical principles and protect the rights of the children who participated in the study, the purpose of the investigation was explained to the children and their parents before the interviews were conducted. Additionally, confidentiality was guaranteed. Before initiating the study, written permission was obtained from the ethical committees of the institutions where the study was to be conducted.

3.5. Limitations of the Study

The information obtained in this study can only be generalized to children with type 1 diabetes who are treated at the studied hospitals, which are located in Erzurum, Turkey.

4. Results

By examining the descriptive features of children with type 1 diabetes, it was determined that 58.7% of the children were aged 13 - 18 years, 56.7% were female, 61.5% lived in the city center, 77.9% were members of a nuclear family, 79.8% had social security, 53.8% had equal income and expenditure, 45.2% had received education to the ninth to twelfth grade level, and 59.6% were successful at school. It was also determined that the children's mothers had an average age of 39.01 ± 5.49 years, 45.2% were primary school graduates, and 90.4% were not in employment, while their fathers had an average age of 44.16 ± 7.17 years, 34.6% were primary school graduates, and 51% were self-employed.

By examining the features of children with type 1 diabetes relevant to their disease, it was determined that the disease developed during the age range of 6 - 15 years in 40.4% of children, 80.8% did not have a history of diabetes in their immediate family, all the children had previously been hospitalized at least once, 90.4% measured their blood glucose regularly and 85.6% measured their blood glucose every day, 88.5% found the family support they received regarding their disease to be sufficient, 45.2% stated that their disease did not affect their daily activities, all the children were informed about the disease, and 83.7% considered their knowledge to be sufficient.

By examining the features of children with type 1 diabetes relevant to their treatment, it was found that all the children used insulin, 58.7% had been using insulin for 1 - 3 years, 97.1% used insulin regularly, 58.7% followed up the insulin treatment by themselves, none of the children had developed any side effects from the insulin, and 39.4% forgot to take their insulin from time to time.

While the lowest mean score for the child attitude toward illness scale was 2.84, the highest score was 4.28. The

general mean score for the scale was found to be 3.4 ± 0.73 . The attitudes of children with type 1 diabetes toward their disease were therefore determined to be neutral.

A significant difference was found between the children in terms of the mean scores for the CATIS with respect to the social security of children with type 1 diabetes, as well as their mothers' education level, their mothers' working conditions, and their fathers' education level ($P < 0.05$) (Table 1).

Table 1. Comparison of the Mean CATIS Scores According to the Descriptive Features of the Children

Features	X ± SD	Test	P Value
Social security status		U = 599.500	0.027
Available	3.49 ± 0.68		
No	3.01 ± 0.80		
Mother's education level		KW = 11.338	0.023
Illiterate	3.43 ± 0.75		
Primary school graduate	3.19 ± 0.72		
Secondary school graduate	3.47 ± 0.50		
High school graduate	3.66 ± 0.71		
Faculty/college graduate	4.18 ± 0.79		
Mother's working status		U = 279.500	0.035
Working	3.91 ± 0.71		
Not working	3.34 ± 0.71		
Father's education level		KW = 10.413	0.034
Illiterate	3.17 ± 0.67		
Primary school graduate	3.25 ± 0.73		
Secondary school graduate	3.52 ± 0.62		
High school graduate	3.19 ± 0.62		
Faculty/college graduate	3.99 ± 0.79		

There was also a significant difference between the children in terms of the mean scores for the CATIS in relation to having a history of diabetes in their immediate family and measuring their blood glucose regularly and frequently, as well as the impact of the disease on their daily activities and their knowledge about the disease ($P < 0.05$) (Table 2).

5. Discussion

Children's feelings and attitudes regarding having a chronic disease can affect their ability to cope and comply with the disease, as well as other functions. At the point of compliance with a chronic disease, it is very important

Table 2. Comparison of the Mean CATIS Scores According to the Features of the Children With Respect to Their Disease

Features	X ± SD	Test	P Value
Is there diabetes in immediate family?		U = 586.000	0.036
Yes	3.65 ± 0.92		
No	3.34 ± 0.67		
Regular blood sugar measurement status		U = 198.500	0.003
Measured	3.47 ± 0.71		
Not Measured	2.74 ± 0.62		
Measurement frequency		U = 397000	0.012
Every day	3.47 ± 0.73		
Occasionally	2.98 ± 0.58		
Does the disease affect daily activities?		KW = 9.792	0.007
Affects	3.08 ± 0.74		
Does not affect	3.59 ± 0.72		
Undecided	3.45 ± 0.61		
Availability of information about the disease		U = 472000	0.018
Enough	3.50 ± 0.62		
Nearly enough	2.86 ± 0.99		

to determine the convenient or inconvenient attitudes of children toward having a chronic physical condition.

In this study, the mean score obtained for the child attitude toward illness scale was 3.4 ± 0.73 , which corresponds to a neutral attitude. In their study, Austin and Huberty (16) also stated that the attitudes of children with epilepsy and asthma toward their diseases were neutral. However, it has previously been stated that the attitudes of children with epilepsy, asthma, diabetes, food allergies, enuresis, and chronic arthritis problems toward their diseases are negative or neutral (19-24). Children with a chronic disease may display maladaptive behaviors when they have negative feelings about and approaches to their disease. This study found that the children did not exhibit negative attitudes, which is an important result.

In this study, a statistically significant difference was observed between the children with type 1 diabetes in terms of the mean attitude score according to their social security status (Table 1). As type 1 diabetes is a chronic disease that requires lifelong follow-up, control, and treatment, its management requires a certain level of monetary resources. Families who frequently apply to hospitals for medical services and who are obliged to arrange their life according to the requirements of diabetes consider their

level of health security to be vital. Thus, the more positive attitudes of children toward their disease could be caused by this condition of social security.

This study found that the educational backgrounds of their parents affected the attitudes of children toward their disease. For instance, children whose parents had bachelor's degrees exhibited more positive attitudes toward their disease (Table 1). Based on the assumption that parents with higher educational levels may be more investigative and consequently more conscious of health- and disease-related issues, it is believed that these children receive greater support from their parents, which positively affects their attitudes toward their disease.

It was also determined that children with type 1 diabetes whose mothers were in employment exhibited more positive attitudes toward their disease (Table 1). This situation could be caused by the fact that the working mothers had taken responsibility for their children's disease earlier and so achieved better compliance with this condition.

This study found that children with type 1 diabetes who had a history of diabetes in their immediate family exhibited more positive attitudes toward their disease (Table 2). This finding could be due to the fact that they had spent time with their ill relatives and so learned the features of the disease from them over the years.

In this study, it was also found that children with type 1 diabetes who measured their blood glucose regularly or every day exhibited more positive attitudes toward their disease (Table 2). Children who accept their disease display more adaptive behaviors toward it (2). Therefore, in this study the more positive behaviors of the children who measured their blood glucose regularly could have been caused by this fact.

This study determined that children with type 1 diabetes whose disease did not affect their daily activities exhibited more positive attitudes toward their disease (Table 2). In his study, Kahraman and Bolisik (25) found that children who thought their disease hindered them from playing games displayed more negative attitudes toward their condition. The intense treatment of type 1 diabetes may hinder the daily activities of children. They may not be as active as their friends at school, home, and the wider social environment, which may cause them to perceive their disease negatively. Children with type 1 diabetes who stated that their daily activities were not affected by their disease were thought to have more positive perceptions of their condition.

In this study, it was found that children with type 1 diabetes who had sufficient information about their disease exhibited more positive attitudes toward their disease (Table 2). Kahraman and Bolisik (25) also observed that among children with epilepsy, those with lower levels of knowl-

edge exhibited more negative attitude toward their disease. It could be asserted that since children who are informed about their disease know how to recognize the disease, live through the process of the disease, and cope with the problems they encounter in relation to it, they have more positive attitudes toward their disease.

5.1. Conclusions and Suggestions

This study determined that children with type 1 diabetes had neutral attitudes toward their disease. The conditions that affected their attitudes toward their disease were whether or not they had social security, their mothers' education level, their mothers' working conditions, their fathers' education level, and whether or not there was a history of diabetes in the immediate family. Other factors affecting their attitudes were the frequency of measuring their blood glucose, how much the disease affected their daily activities, and their level of knowledge about their disease.

Interventions should be undertaken with the aim of enabling children to develop positive attitudes toward their disease. It is also important to understand the effect of the attitude developed by children toward their disease on disease management, and to consider such issues when providing training for children and their families. Family support for children to better manage their disease should be encouraged. The aim should be to evaluate the attitudes of children toward their disease via measurement instruments that reveal their psychological states and therefore predict and prevent possible secondary psychosocial problems. Health care workers should provide greater psychosocial support for children who appear to have developed negative attitudes toward their disease. In this regard, health care institutions should provide in-service training concerning the importance of attitude to children's compliance with their disease, as well as to increase the knowledge and awareness of health care professionals regarding this issue.

The study revealed that children with type 1 diabetes had neutral attitudes toward their disease, which were affected according to certain variables.

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