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The Impact of Type 1 Diabetes on the Family and Related Factors

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Abstract

Objective: This study was conducted to determine the impact of Type 1 diabetes mellitus and related factors on children and families. **Methods:** The descriptive study was conducted with the parents of 175 children aged 6-18 years with Type 1 diabetes mellitus. The data were collected using the "Child and Family Information Form" and the "Diabetes Family Impact Scale (DFIS)." pResults:It was determined that the parents' total median DFIS score was 21.42 (9.52-35.71) and the highest median score was 33.33 (11.11-66.66) in the "finances" sub-dimension score. There was a significant difference between the child's school success and the parents' "school" sub-dimension median scores, the mother's employment status and the "work" sub-dimension median scores, and the family's income level and the DFIS total median scores (pConclusions and Recommendations:It was concluded that diabetes mostly adversely affected the family in terms of "finances." It was also determined that the negative impact of diabetes on the family was higher in children with poor school success and in families where mothers were unemployed and whose income was less than their expenses. The negative impact of diabetes on the family increased as the ages of the child, mother, and father and the duration of diagnosis decreased and the HbA1c level increased. In line with the research findings, one should be aware of the factors (child's age, child's school success, parental age, parental employment status, family income level, duration of diagnosis, HbA1c level) that affect the negative effects of diabetes on the family. In addition, it is recommended to plan and implement the necessary initiatives to prevent the negative effects of diabetes on the family (especially in the financial field) since the child's diagnosis of diabetes.

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ABSTRACT

Objective: This study was conducted to determine the impact of Type 1 diabetes mellitus and related factors on children and families. **Methods:** The descriptive study was conducted with the parents of 175 children aged 6-18 years with Type 1 diabetes mellitus. The data were collected using the "Child and Family Information Form" and the "Diabetes Family Impact Scale (DFIS)." $p<0.05$ was considered as the significance level. **Results:** It was determined that the parents' total median DFIS score was 21.42 (9.52-35.71) and the highest median score was 33.33 (11.11-66.66) in the "finances" sub-dimension score. There was a significant difference between the child's school success and the parents' "school" sub-dimension median scores, the mother's employment status and the "work" sub-dimension median scores, and the family's income level and the DFIS total median scores ($p<0.05$). A significant correlation was found between the child's age, the mother's age, the father's age, the duration of diagnosis, the HbA1c level and the DFIS scores of the parents ($p<0,05$). **Conclusions and Recommendations:** It was concluded that diabetes mostly adversely affected the family in terms of "finances." It was also determined that the negative impact of diabetes on the family was higher in children with poor school success and in families where mothers were unemployed and whose income was less than their expenses. The negative impact of diabetes on the family increased as the ages of the child, mother, and father and the duration of diagnosis decreased and the HbA1c level increased. In line with the research findings, one should be aware of the factors (child's age, child's school success, parental age, parental employment status, family income level, duration of diagnosis, HbA1c level) that affect the negative effects of diabetes on the family. In addition, it is recommended to plan and implement the necessary initiatives to prevent the negative effects of diabetes on the family (especially in the financial field) since the child's diagnosis of diabetes.

Keywords: family, adolescent, child, impact, Type 1 diabetes.

INTRODUCTION

Type 1 diabetes mellitus (Type 1 DM) is a common endocrine system disease in children and adolescents characterized by increased blood glucose levels resulting from autoimmune destruction of the insulin-producing beta cells of the pancreatic gland requiring insulin replacement therapy.[1-4] According to the data of the International Diabetes Federation (IDF), there are more than 1.2 million children/adolescents (0-19 years) with Type 1 DM in the world, and more than half (54%) of them are under fifteen years old.[1] In addition, 184,100 children/adolescents (0-19 years) are diagnosed with Type 1 DM every year in the world.[1] The number of children and adolescents (0-19 years) with type 1 DM is approximately 25,669 in Turkey.[5] Moreover, it has been reported that approximately 2500 children and adolescents are diagnosed with Type 1 DM every year in Turkey.[6]

Studies have demonstrated that there are many challenges for children and adolescents with Type 1 DM and their parents in the management process of the disease.[7-11] Type 1 DM affects the family life in many aspects, especially in physical, psychological, behavioral, financial, and social areas and requires changes in family life and the responsibilities of family members.[12,13] In a study, children with Type 1 DM indicated that they could not participate in social activities at school as they wished, and they were exposed to discrimination and felt different from their friends.[14] In another study conducted with adolescents with Type 1 DM, adolescents indicated that they allocated a significant part of their time to diabetes management in their daily life and had limitations in their lives. [15]

Along with the diagnosis of their children with Type 1 DM, parents may experience losses with regard to the health and freedom of their children and their self-confidence in parenting.[16] When the literature in our country was reviewed, no study investigating the multidimensional impacts of Type 1 DM on the family was found, although there were studies revealing the impacts of Type 1 DM on children,[10,17] healthy siblings,[18] school life,[11,19-21] financial status, and family relations. [22] Furthermore, it is important to determine the impact of Type 1 DM on children and families and the related factors in terms of planning intervention attempts to reduce/eliminate the negative impacts of diabetes on the child and family and improve diabetes management. Therefore, this study was conducted to determine the impact of Type 1 diabetes mellitus on children and families and the related factors.

METHODS

Type, Place, and Time of Research

The descriptive study was carried out with the parents of 175 children aged 6-18 with Type 1 diabetes who were followed up in the pediatric endocrinology outpatient clinic of a university hospital between January 15, 2020, and April 30, 2020.

Sample of the Research

The population of the study consisted of parents of children with Type 1 diabetes aged 6-18 years. The sample size of the study was calculated using the G-Power 3.1.9.4 version program. The number of samples was determined as 156 when 95% confidence interval and the effect size (d) was calculated with 0.20 at 80% power level. Considering the data loss in the study, the sample size was increased by 10% and the study was completed with 175 parents.

Inclusion criteria for the study included parents having a 6-18 year old child with Type 1 diabetes, diabetes duration of the child of 6 months or more, the child has no chronic disease other than diabetes, volunteering to participate in research, ability to read and write Turkish.

Data Collection Instruments

Data were collected with "Child and Family Information Form" and "Diabetes Family Impact Scale (DFIS)".

Child and Family Information Form

The form was prepared by the researchers in line with the literature.[12,15,19,23,24] The form consists of a total of 18 questions, 8 questions introducing the child and his or her illness, and 10 questions introducing the parents and family.

Diabetes Family Impact Scale (DFIS)

Using samples obtained from the United States, Katz et al constructed the DFIS.[23] It evaluates how Type 1 DM, which affects children and adolescents between the ages of 5 and 18, affects family life. The four subscales that make up this 14-item scale are school (items 1-4), work (items 5-7), finances (items 8–10) and well-being (items 11–14). A four-point scale with the following options is used to record responses to the scale items: "Almost Never" = 0, "Sometimes" = 1, "Often" = 2, and "Always " = 3 points. In order to standardize the scores (range = 0-100), total scores can be calculated by averaging the scores of all questions without missing responses, multiplying the result by 100, and dividing the result by 3. The same formula must be used to calculate subscale scores. Higher scale and subscale scores are a sign that diabetes mellitus will have a more detrimental impact on the family. The

total scale's Cronbach's alpha in the initial validation study was 0.84.[23] Çetintaş and Kostak conducted the validity and reliability assessment of the scale in Turkey and they found that the scale as total had a Cronbach's alpha coefficient of 0.88. [25]

Data Collection

Data were collected through face-to-face interviews with parents of children with Type 1 diabetes. After explaining the purpose of the study, parents who volunteered to participate in the study were given forms (Child and Family Information Form, Diabetes Family Impact Scale) and were given the forms to fill out. The average time for parents to answer the forms was 10 minutes.

Statistical Analysis

IBM SPSS 23 package program (IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp.) was used to evaluate the data. Sociodemographic characteristics of the participants; represented by number, percentage, mean and standard deviation. Kolmogorov-Smirnov test was used to test the normal distribution of the data. According to the variance homogeneity results of the mean scores of the scale and sub-dimensions, non-parametric tests were used in the analysis of the data. Mann Whitney U, Kruskal Wallis, Mann Whitney U test with Bonferroni correction and Spearman correlation tests were used to determine the relationships between the descriptive features in the Child and Family Information Form and the scale median scores. $p<0.05$ was accepted as the limit of significance. In defining the correlation power; very weak=0.00-0.25, weak=0.26-0.49, medium=0.50-0.69, high=0.70-0.89, very high correlation=0.90-1.00 correlation coefficients were taken as reference.[26]

Ethical Considerations

Ethical approval was obtained from the Scientific Research Ethics Committee of Trakya University Faculty of Medicine (Date: January 6, 2020, Number: 2020/27), and permission to conduct this study was obtained from the hospital in which data were collected. The participants were informed about the purpose of the study, and they provided written and verbal consent before participating in the study. The parents were informed that they should not write their names on the forms and that the data obtained would only be used for scientific purposes.

RESULTS

The mean age of the children with Type 1 DM was 12.01±3.42 years, 54.3% of them were girls, 56.6% had a sibling and 40.0% of them were secondary school students. According to parent statements, 46.3% of children with diabetes had very good school success and the mean number of days they did not attend school in a semester was 4.18±5.18. The mean duration of Type 1 DM of the children was found to be 4.52±3.09 years and the mean HbA1c level measured at the last time was 8.13±1.50% (Table 1). 65.1% of the parents participating in the study were mothers, the mean age of the mothers was 39.04±6.59 years, 66.9% of them did not work in any job, 53.1% of them were primary school graduates. It was determined that the mean age of the fathers was 42.54±6.73 years, 87.4% of them were working in any job and 36.0% of them were high school graduates. It was found that 57.7% of the families had income that was equal to their outgoings (Table 1).

Table 1. Distribution of Descriptive Characterists of Children and Families (n=175)

Child characteristics	*Mean±SD/n(%)		Family characteristics	*Mean±SD/n(%)	
Age (year)	12.01±3.42		Family member responding		
Gender			Mother	114	65.1
Girl	95	54.3	Father	61	34.9
Boy	80	45.7	Maternal age (years)	39.04±6.59	
Number of siblings			Father's age (years)	42.54±6.73	
1	31	17.7	Mother education level		
2	99	56.6	Primary school	93	53.1
3 and above	45	25.7	Secondary school	33	18.9
Class			High school	29	16.6
1-4 (Primary school)	56	32.0	University	19	10.9
5-8 (Secondary school)	70	40.0	Father education level		
9-12 (High school)	49	28.0	Primary school	53	30.3
School success			Secondary school	28	16.0
Very good	81	46.3	High school	63	36.0
Good	72	41.1	University	31	17.7
Moderate	19	10.9	Mother's employment		
Poor	3	1.7	Working at a job	58	33.1
School absenteeism (day)	4.18±5.18		Not working	117	66.9
Diabetes duration (years)	4.52±3.09		Father's employment		

Child characteristics	*Mean±SD/n(%)	Family characteristics	*Mean±SD/n(%)	
HbA1c level (%)	8.13±1.50	Working at a job	153	87.4
		Not working	22	12.6
		Household income		
		Income less than expenses	52	29.7
		Income equals expense	101	57.7
		Income more thanexpenses	22	12.6

**Mean±SD/n(%)= Mean±Standard Deviation/number(percent).*

When the parents' total and sub-dimension median scores of DFIS were examined; School sub-dimension median score was 16.66 (0.00-25.00), Work sub-dimension was 11.11 (0.00-33.33), Finances sub-dimension was 33.33 (11.11-66.66) , Well-being sub-dimension was found to be 16.66 (0.00-33.33) and the total median score of DFIS was 21.42 (9.52-35.71) (Table 2).

Table 2. Distribution of Parents' Total and Sub-Dimension Median Scores on DFIS (n=175)

Variables	Median (IQR)	Min.-Max.
School	16.66 (0.00-25.00)	0.00-100.00
Work	11.11 (0.00-33.33)	0.00-100.00
Finances	33.33 (11.11-66.66)	0.00-100.00
Well-being	16.66 (0.00-33.33)	0.00-100.00
DFIS	21.42 (9.52-35.71)	0.00-100.00

DFIS: Diabetes Family Impact Scale, IQR: 25th to75th interquartile range

There was weakly negative correlation between children age and "Work" (r=-0.228; p=0.002); "Finances" (r=-0.270; p=<0.001); "Well-being" sub-dimension (r=-0.269; p=0.001) and DFIS total (r=-0.259; p=0.002) median scores (Table 3). As the children's age decreased, the parents' "Work", "Finances", "Well-being" sub-dimension and DFIS total median scores increased.

There was weakly negative correlation between mother's age and "School" (r=-0.188; p=0.013); "Work" (r=-0.189; p=0.012), "Finances" (r=-0.243; p=0.001) sub-dimension and DFIS total (r=-0.295; p=<0.001) median scores (Table 3). As the mother's age decreased, the parents' "School", "Work", "Finances" sub-dimension and the total median scores of DFIS increased.

There was weakly negative correlation between father's age and "School" (r=-0.188; p=0.014); "Work" (r=-0.175; p=0.022); "Finances" sub-dimension (r=-0.251; p=0.001) and DFIS total (r=-0.252; p=0.003) median scores (Table 3). As father's age decreased, parents' "School", "Work", "Finances" sub-dimension and DFIS total median scores increased.

There was weakly negative correlation between diabetes duration and "Finances" (r=-0.178; p=0.018); "Well-being" sub-dimensions (r=-0.184; p=0.030) and DFIS total (r=-0.180; p=0.033) median scores (Table 3). As the duration of diabetes diagnosis decreased, parents' "Finances", "Well-being" sub-dimension and DFIS total median scores increased.

There was weakly positive correlation between the HbA1c level of children with diabetes and the median scores of the "School" sub-dimension (r=0.159; p=0.037) (Table 3). As the HbA1c level of children with diabetes increased, so did the parents' median scores for the "School" sub-dimension.

Table 3. Correlation Coefficients and Significance Levels Between Parents' Total and Sub-Dimension Scores of DFIS and Some Characteristics of The Child and Family (n=175)

Variables		Child age	Mother's age	Father's age	Diabetes duration	HbA1c level
School	*r_s	-0.082	-0.188	-0.188	-0.068	0.159
	p	0.283	**0.013**	**0.014**	0.369	**0.037**
Work	*r_s	-0.228	-0.189	-0.175	-0.017	0.066
	p	**0.002**	**0.012**	**0.022**	0.825	0.394
Finances	*r_s	-0.270	-0.243	-0.251	-0.178	0.076
	p	**<0.001**	**0.001**	**0.001**	**0.018**	0.323
Welll-being	*r_s	-0.269	-0.138	-0.131	-0.184	-0.113
	p	**0.001**	0.105	0.124	**0.030**	0.187
DFIS	*r_s	-0.259	-0.295	-0.252	-0.180	0.028
	p	**0.002**	**<0.001**	**0.003**	**0.033**	0.748

*DFIS: Diabetes Family Impact Scale, *r_s= Spearman Correlation Analysis*

There was significant difference between the class of the child with diabetes and the parents' total and sub-dimension median scores on DFIS (p<0.05). Parents whose children with diabetes went to primary school had higher "Work", "Finances", "Well-being" and DFIS median scores compared to children who went to secondary school and high school (Table 4).

There was significant difference between the school success of the child with diabetes and the median scores of the parents' "School" sub-dimension (p<0.05). The parents of the children with diabetes who had moderate school success had higher median scores in "School" height than those whose school achievement was very good (Table 4).

There was significant difference between the mother's employment status and the "Work" sub-dimension median scores of the parents (p<0.05). Unemployed mothers had higher median scores on the "Work" sub-dimension than working mothers (Table 4).

There was significant difference between the household income and the total and sub-dimension median scores of DFIS (p<0.05). In families whose income is less than their expenses, the parents' "Work", "Finances" sub-dimensions and DFIS total median scores were found to be higher than the families whose income is equal to their expenses and the families whose income is more than their expenses (Table 4).

Table 4. Comparison of Some Characteristics of The Child and Family and The Parents' Total and Sub-Dimension Median Scores Of DFIS (n=175)

Variables	**School** Median (IQR)	**Work** Median (IQR)	**Finances** Median (IQR)	**Well-being** Median (IQR)	**DFIS** Median (IQR)
Class					
1-4. [a] (Primary school)	16.66 (8.33-25.00)	27.77 (0.00-55.55)	44.44 (22.22-86.11)	25.00 (8.33-45.83)	30.95 (17.85-47.61)
5-8. [b] (Secondary school)	16.66 (0.00-33.33)	0.00 (0.00-33.33)	33.33 (11.11-66.66)	8.33 (0.00-25.00)	21.42 (7.14-33.33)
9-12.[c] (High school)	8.33 (0.00-25.00)	0.00 (0.00-33.33)	22.22 (0.00-33.33)	8.33 (0.00-16.66)	15.47 (7.14-27.97)
	*1.379 p=0.502 -	*11.047 **p=0.004** **a-b=23.220 **p=0.021** **a-c=28.532 **p=0.007**	*10.474 **p=0.005** **a-c=31.800 **p=0.004**	*15.821 **p<0.001** **a-b=24.695 **p=0.006** **a-c=32.272 **p=0.001**	*10.916 **p=0.004** **a-c=28.354 **p=0.004**
School success					
Very good [a]	8.33 (0.00-25.00)	11.00 (0.00-33.33)	33.33 (11.11-61.11)	8.33 (0.00-27.08)	19.04 (7.14-33.33)
Good [b]	16.66 (8.33-33.33)	11.00 (0.00-33.33)	33.33 (2.77-66.66)	16.66 (0.00-33.33)	23.80 (9.52-39.28)
Moderate [c]	25.00 (16.66-33.33)	22.22 (0.00-44.44)	33.33 (22.22-55.55)	16.66 (10.41-39.58)	26.19 (21.42-30.35)
Poor [d]	50.00 (16.66--)	0.00 (0.00--)	66.66 (0,00--)	66.66 (66.66-66.66)	76.19 (76.19-76.19)
	*12.806 **p=0.005** **a-c=-34.603 **p=0.039**	*2.332 p=0.507 -	*0.468 p=0.926 -	*4.198 p=0.241 -	*5.808 p=0.121 -
Mother's employment					
Working at a job	16.66 (6.25-25.00)	0.00 (0.00-22.22)	33.33 (8.33-66.66)	16.66 (0.00-31.25)	19.04 (7.73-30.35)
Not working	16.66 (0.00-25.00)	11.11 (0.00-44.44)	33.33 (11.11-66.66)	16.66 (0.00-33.33)	23.80 (11.90-38.09)
	***3286.500 p=0.801	***2730.500 **p=0.033**	***3083.500 p=0.366	***1962.000 p=0.858	***1740.500 p=0.231

Household income					
Income less than expenses [a]	16.66 (8.33-33.33)	33.33 (0.00-66.66)	66.66 (33.33-97.22)	16.66 (0.00-41.66)	28.57 (21.42-54.76)
Income equals expense [b]	16.66 (0.00-25.00)	11.11 (0.00-33.33)	33.33 (11.11-44.44)	16.66 (0.00-25.00)	19.04 (9.52-33.33)
Income more than expenses [c]	12.50 (6.25-25.00)	0.00 (0.00-11.11)	11.11 (0.00-47.22)	8.33 (0.00-41.66)	14.28 (2.38-27.38)
	*3.591 p=0.166 -	*14.565 **p=0.001** **a-b=25.807 **p=0.005** **a-c=40.536 **p=0.003**	*26.294 **p<0.001** **a-b=39.324 **p<0.001** **a-c=52.214 **p<0.001**	*1.454 p=0.483 -	*12.922 **p=0.002** **a-b=24.304 **p=0.006** **a-c=35.310 **p=0.007**

DFIS: Diabetes Family Impact Scale, IQR: 25th to75th interquartile range.
**Kruskal Wallis Test, ** Mann Whitney U Test with Bonferroni Correction, ***Mann Whitney U Test.*

DISCUSSION

Type 1 DM is a disease with a complex treatment and care program that affects the lives of children and their families in many dimensions (social participation, school attendance, school success, self-esteem, perceived social support, family and peer relationships, etc.) and includes the complications that may cause psychosocial problems in the future.[10,11,27,28] In this study conducted to determine the multidimensional impact of Type 1 DM on the family and the related factors, the median DFIS score of parents was found to be 21.42 (9.52-35.71) (Table 2). Likewise, the median DFIS score was 15.4 (0–73.8) in the study by Katz et al.[23] The score that can be obtained from the scale varies between 0-100, and since the negative impact of diabetes on the family increases as the score increases, according to the findings of our study it can be said that the negative impact of diabetes on families was not very high. Furthermore, it was determined that the negative effect of diabetes was mostly in the field of "financial situation" (Table 2). Since more than half (57.7%) of the parents included in the study had income equal to their expenses, it can be said that the additional expenditures required for the diabetes management of their children caused families to have financial difficulties.

According to our research findings, the negative impact of diabetes on the family decreased as the age of the child with diabetes, maternal age, paternal age, and the duration of diabetes diagnosis increased (Table 3). A study conducted with children and adolescents with Type 1 DM reported that the quality of life of the child and parents increased as the child's age increased.[29] The negative impact of diabetes on the family is considered to decrease since children's independence in diabetes management increases as their age increases. Furthermore, it is considered that parents make positive contributions to diabetes management with their experience as their age increases. In parallel with the result of our study, some studies in the literature show that the negative effects of diabetes decrease with increasing duration of diabetes.[30,31] As the duration of diabetes diagnosis gets longer, the child and family gain experience in diabetes management and adapt to the disease, thus reducing the negative effects of diabetes.

The results of our study showed that negative impact of diabetes on the family increased in the "school" dimension as the HbA1c level of the child with diabetes increased (Table 3). Likewise, other studies have shown similar findings. [29,30,31,32,34,35] HbA1c value is an important indicator of metabolic control in diabetes and provides information about the mean blood glucose level for the past 3-4 months.[36] In this study, it can be said that the negative impact of diabetes in school life increased as the HbA1c level increased (as the child's metabolic control deteriorated).

In this study it was found that diabetes was found to have less negative impact on the family in children with diabetes studying in high school compared to those studying in primary and secondary schools (Table 4). Likewise, studies conducted with children with Type 1 DM reported that children studying in high school had a higher health-related quality of life than children with diabetes studying in secondary school. [34] This result is consistent with our research findings showing that the negative impact of diabetes on the family decreases with the increase in the age of the child with diabetes (Table 3).

This study also determined that children with diabetes with very good school success had less negative impact of diabetes in the "school" dimension compared to children with moderate school success (Table 4). In the same way, other studies have shown similar findings.[17,19,20,29] In line with the results of this study and the literature, it can be said that school success decreases with the increase in the negative impact of diabetes on the family, in other words, the negative impact of diabetes on the family increases in children with Type 1 diabetes with low school success.

Another finding was that the negative impact of diabetes on the family was higher in the "work" sub-dimension among unemployed mothers compared to employed mothers in our study. Furthermore, the negative impact of diabetes on the family was higher in families with income less than their expenses compared to families with income equal to their expenses and income more than their expenses (Table 4). The fact that unemployed mothers experienced the negative impact of diabetes on the family mostly in the "Work" dimension can be explained by the fact that mothers left work or were unable to work because of their child's illness. Similar to the results of our study, another study conducted with children and adolescents with Type 1 DM reported that the child's health-related quality of life increased as the family's income level increased.[7] In the study of Gadallah et al., it was reported that 60% of children with Type 1 DM with poor glycemic control had a family with a low socioeconomic level.[37] In another study, it was indicated that adolescents with a low family income had a poor diabetes-related quality of life.[33] Some parents (especially mothers) whose children are diagnosed with diabetes may leave their jobs temporarily or permanently, and additional expenses caused by diabetes management may lead to financial difficulties for the family. Furthermore, this situation supports the result of our study showing that the negative impact of diabetes on the family was mostly in the "financial situation" dimension.

Limitations

The data reflect the responses of parents of children with Type 1 diabetes at the center where the study was conducted. There is no comparison of the study results with the responses of parents of healthy children. In addition, because this research is a descriptive study based on parents' filling out forms/surveys, there may be limitations such as survey errors or response bias.

CONCLUSION

This study determined that the negative impact of diabetes on the family was not very high and the negative impact was mostly in the field of "finances". It was found that the negative impact of diabetes on the family was higher in children with poor school success, in families where mothers did not work and whose income was less than their expenses. As the age of the child, the age of the mother, the age of the father and the duration of diabetes decrease, the negative effects of diabetes on the family increase. It was determined that the negative effect of diabetes on the family increased as the HbA1c level increased. In line with the research findings, one should be aware of the factors (child's age, child's school success, parental age, parental employment status, family income level, duration of diagnosis, HbA1c level) that affect the negative effects of diabetes on the family. In addition, it is recommended to plan and implement the necessary initiatives to prevent the negative effects of diabetes on the family (especially in the financial field) since the child's diagnosis of diabetes. According to the negative impact of diabetes on the child and family, it is recommended to refer the family to the relevant institutions (for financial support, referral to official or non-governmental organizations; referral to a psychologist/psychiatrist for psychosocial problems, etc.). In addition, it is recommended to evaluate the child and family with measurement tools every 6 months in terms of the negative effects of diabetes.

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