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## Comparison of Family Life Quality in Type 1 Diabetic and Healthy Children from the Perception of their Mothers

### Abstract

**Background:** Given the fact that the quality of care of diabetic children and their mothers' psychological health and family life quality have mutual effects on each other; in this study, we aimed to compare family life quality of type 1 diabetic (T1DM) patients with healthy children from the perception of their mothers. However, our findings would be helpful for further interventional studies in order to improve both diabetes management and psychological health of their parents. **Methods:** In this case control study, mothers of children with T1DM, who referred to endocrine and metabolism clinics of Isfahan city, were enrolled. Demographic and familial characteristics of studied population were recorded. Family life quality was evaluated using Retting and Leichtenritt questionnaire and compared between two groups. The questionnaire consists of 32 items, which were representative of six resources including love, status, services, information, goods, and money. **Results:** In this study, 50 children with T1DM and 50 healthy children and their mothers were evaluated. Mean total score of family life quality and its resource classes were significantly higher in mothers of T1DM patients than mothers of healthy children ( $P < 0.05$ ) except for love ( $P = 0.05$ ). **Conclusions:** The findings of this study indicated that the total family life quality score was significantly lower in families of diabetic patients than healthy children families from the perception of their mothers. Our results indicated that most of the family-life-related dimensions including attitude and service, services, information, goods, and money affected by the disease conditions and its related comorbidities.

**Keywords:** Diabetes mellitus, family, mothers, quality of life, type 1

### Introduction

Type 1 diabetes (T1DM) is one the most common chronic endocrine disorders in children, which is related with different comorbidities. Incidence of the disease had increasing trend during last decades.<sup>[1]</sup>

Management of the disease is multidemential and complex. The treatment and follow-up process of T1DM includes frequent monitoring of blood glucose and food intake and insulin therapy in order to provide an intensive therapy and better glycemic control. In addition, T1DM is associated with different complications such as hypoglycemia, hyperglycemia and ketoacidosis, growth disorder, and micro- and macrovascular diseases. Thus, it considered an important challenge for both children and their parents specially their mothers.<sup>[2,3]</sup>

Family members especially mothers are in close involvement for T1DM management.

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Such continuous involvement of mothers result in family function disruption and different psychological problems including distress, depression, anxiety, guilt, grief, and family conflict.<sup>[4]</sup> Evidences indicated that using coping strategies including wishful thinking, avoidance, and denial are associated with mothers' psychological morbidity and consequently poor quality of life in physical, psychological, and general well-being domains.<sup>[5-7]</sup>

There is a concept, family life quality, which measures both objective and subjective aspects of family well-being and functioning. The measure used to explain factors for having a good family or better life in a family. Various scales are available to evaluate different aspects of family life quality.<sup>[8-10]</sup> There are few studies which compare the family life quality of T1DM children with healthy children.<sup>[11,12]</sup>

Given the fact that the quality of care of diabetic children and their mothers' psychological health and family life quality

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have mutual effects on each other; in this study, we aimed to compare family life quality of T1DM patients with healthy children from the perception of their mothers. However, our findings would be helpful for further interventional studies in order to improve both diabetes management and parents of diabetic patients' psychological health.

### Methods

In this case control study, mothers of children with T1DM, who referred to endocrine and metabolism clinics of Isfahan city, were enrolled. The study was conducted from March 2018 to March 2019.

Mothers of T1DM patients aged 5–12 years with confirm diagnosis by an endocrinologist, who have not any chronic disorder or any psychological disorder, were included. A similar age and sex-matched group consist of mothers of healthy children who referred to the endocrine and metabolism clinics for annual growth follow-up also were considered as control group. Mothers who have not appropriate cooperation were excluded. Mothers of T1DM patients who have other autoimmune disorders such as celiac, thyroid diseases, or other concomitant disease were excluded also.

Methods and objectives of the study were described in details for selected mothers and written informed consent form was obtained from the participants.

Demographic and familial characteristics of studied population were recorded. Family life quality was evaluated using Retting and Leichtentritt questionnaire and compared between two groups.

### Family life quality questionnaire

The questionnaire was designed by Retting and Leichtentritt in 1993. It consist of 32 items, which were representative of six resources including love (five items), status (five items), services (five items), information (seven items), goods (five items), and money (five items).<sup>[13]</sup>

Generally, the measure asked about “how do you feel about your family life if you have consider each of the six resources?” The questionnaire scaled using the Delighted-Terrible Likert scale format, ranging from terrible<sup>[1]</sup> to delighted.<sup>[7,13,14]</sup>

Considering that participants would like to represent the family in a highly positive status, the tendency result in negatively skewed distributions of studied variables. The Delighted-Terrible Scale could differentiate different degrees of responders' positive feelings and consequently reduce the variables negative skewed distributions.

In addition, given that family life quality evaluation includes both cognitive measures and different degree of negative or positive feelings, the scale could properly determine the individual affective evaluations of family life

rather than satisfaction. The validity, internal consistency, and consistent performance of the questionnaire have been demonstrated previously.<sup>[15]</sup>

In this research, we used the Persian version of the questionnaire<sup>[16]</sup> and Cronbach's alpha of the scale for total quality of life was 0.983 and for its resources was 0.941, 0.93, 0.946, 0.995, 0.941, and 0.955 for love, status, services, information, goods, and money, respectively.

### Statistical analysis

The collected data were analyzed using SPSS version 23 software. Quantitative and qualitative data were reported as mean (SD) and number (percentages), respectively. Comparison of the studied variables in the two groups was performed using student *t*-test for quantitative data and Chi-square test for qualitative data.  $P < 0.05$  is considered as significant level.

For analyzing the data at the descriptive and inferential levels, the mean and standard deviation and analysis of variance have been used.

### Results

In this study, 50 children with T1DM and 50 healthy children and their mothers were evaluated. Demographic characteristics of the studied population in the two groups are presented in Table 1. Children in both groups were age matched ( $P > 0.05$ ) and mothers of the children were

**Table 1: Demographic characteristics of children with T1DM and 50 healthy children and their mothers**

	Children with type 1 diabetes, n=50	Healthy children, n=50	P
Mother's age group (year)			
20-30	6 (12%)	5 (10%)	0.22
30-40	20 (40%)	23 (46%)	
40-50	22 (44%)	15 (7%)	
50-60	2 (4%)	7 (14%)	
Mother's job			
Student	1 (2%)	1 (2%)	0.32
Self-employed	2 (4%)	4 (8%)	
Housewife	30 (60%)	21 (42%)	
Employee	17 (34%)	24 (48%)	
Education			
Elementary	10 (20%)	4 (8%)	0.22
High school	14 (28%)	17 (34%)	
University	24 (52%)	29 (58%)	
Number of children in the family			
1	14 (28%)	17 (34%)	0.17
2	18 (36%)	23 (46%)	
3	15 (30%)	10 (20%)	
4	3 (9%)	0 (0%)	
Children's age groups (year)			
5-10	28 (56%)	29 (58%)	0.42
10-12	22 (44%)	21 (42%)	

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similar regarding their age group, education, number of children, and job ( $P > 0.05$ ).

Mean (SD) of family life quality and its six resource classes are presented in Table 2. Mean total score of family life quality and its resource classes were significantly higher in mothers of T1DM patients than mothers of healthy children ( $P < 0.05$ ) except for love ( $P = 0.05$ ).

### Discussion

In this study, we compared the family life quality of T1DM patients with healthy children based on their mothers' perception. Our findings indicated that total score of family life quality and five out of its six resources were significantly lower in the family of T1DM patients than healthy ones. There were not significant differences between groups for love resource.

Though there were some studies which indicated psychological comorbidities in parents and mothers of T1DM patients,<sup>[11,12,17,18]</sup> but there was not any study which evaluated family life quality in this group of patients. Kirk *et al.* demonstrated that diabetes considered a great challenges for families which could result in stress and anxiety in parents of T1DM children and this psychological problem could be a risk factor for poor quality of life.<sup>[11]</sup>

In another study in Norway, Xiros evaluated the life quality of parents of T1DM children by an in-depth interview with their mothers. They indicated that mothers of T1DM patients have many negative experiences regarding disease management. They feel ignored and isolated in their life with a constant high stress. Based on the study results, social support could have an important role in improving their quality of life by reducing their feeling of loneliness.<sup>[12]</sup>

In this study, we used the questionnaire developed by Retting and Leichtenritt. The measure contains symbolic and material resources and evaluates different personal needs including physical, psychological, social, and economic functions of family for having better family life. Details of the measure and its resources are described previously.<sup>[15]</sup>

**Table 2: Mean (SD) of family life quality and its six resource classes based on mothers' perception of T1DM and healthy children perception**

	Children with type 1 diabetes, n=50	Healthy children, n=50	P
Love	25.60 (4.86)	27.40 (4.56)	0.059
Status	24.84 (5.26)	27.64 (4.09)	0.003
Services	21.92 (6.56)	26.24 (5.06)	0.001
Information	31.78 (9.01)	36.58 (7.10)	0.002
Goods	20.88 (7.80)	24.84 (5.90)	0.013
Money	19.06 (7.66)	22.56 (6.12)	0.010
Total	144.07 (36.18)	165.26 (30.35)	0.002

“Status is an expression of evaluative judgment which conveys high or low prestige, respect, or esteem.”<sup>[15]</sup> In this study, the mean score of resource of status was significantly lower in T1DM diabetic patients' families than healthy children families. It is suggested that due to the psychological comorbidities of T1DM, their expectations of others have been changed. In fact, the dignity and respect of others toward the mothers of the patients have not been changed, but due to the mothers' misconception, they feel less respect from their surrounding people. In some cases, the mothers believe that because of their child illness, their surrounding people should pay more attention and give more respect and dignity, Thus, they underestimate their status.

“Money is any coin, currency, or token which has some standard of value.”<sup>[15]</sup> Regarding the money resource, it is obvious that having a child with a chronic disease such T1DM has a lot of financial burden for the families. The burden in societies with inadequate facilities and services would be more prominent. In fact, a large portion of the families' income is spent for their child illness. It is suggested that social financial support for better care of this group of patients would improve the family life quality.

“Services involve activities on the body or belongings of a person which often constitute labor for another” and Goods defined as “tangible products, objects, or materials.”<sup>[15]</sup> Mean score of services and goods resource was also lower in families of diabetic children than healthy ones. One of the reasons refers to the high love and affection of the mothers' especially Iranian mothers. In order to provide the best condition for the children, mothers deprive themselves of many services. On the other hand due to continues and close involvement of mothers for the children care, they have not enough time and opportunity for some activities such as recreational and social activities. It is also suggested that lack of enough support by other family members for providing better care for the children make some shortcomings for them in the field of these services.

“Information includes advice, opinion, instruction, or enlightenment.”<sup>[15]</sup> In this study, mean score of information in mothers of diabetic children was less than that of mothers of healthy children, which can be explained stressful life and fulltime involvement of mothers in the treatment and care of the patient.

“Love is defined as an expression of affectionate regard, warmth, or comfort.”<sup>[15]</sup> In this study, there was not a significant difference between studied groups regarding love resource. The lack of difference could be explained by the fact that love and affection are subjective and symbolic resource. It is an intrinsic trait which could not influenced by different factors. Mothers considered as symbol of love and affection for the family specially children.

Based on the model which used for the family life quality measure, love is considered as the most particularistic

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resource. Particularism refers to the “extent to which the value of a given resource is influenced by the particular persons involved in exchanging it and by their relationship.”<sup>[15]</sup> Thus, its value does not change in different conditions.

The total family life quality score in our study was significantly lower in families of diabetic patients than healthy children due to the disease effect on most of the studied resources. Our results were based on mothers’ perception. Retting and Leichtentritt reported that their measure in women’s model had better fit of the data than Themen’s model.<sup>[15]</sup>

Though the stressful life style of such families increase the susceptibility of the parents to different psychological disorders, it is suggested that social support and also appropriate interventions of healthcare professionals for better management of the disease and education of parents for appropriate facing with the diabetes care management challenges would improve family life quality.

This study had some limitations including small sample size, cross-sectional design of the study, and not completely matching of studied population regarding familial socioeconomic condition and duration of diabetes. It is suggested that by increasing the duration of the disease its some variables could affect more significantly, and for some variables, the effectiveness would be decreased.

The strength of this study was that it was the first study in this field among diabetic children.

## Conclusions

The findings of this study indicated that the total family life quality score was significantly lower in families of diabetic patients than healthy children families from the perception of their mothers. Family life quality means personal perception regarding their family status based on their cultural values according to their interests, goals, and expectations. Our results indicated that most of the family-life-related dimensions including attitude and service, services, information, goods, and money affected by the disease conditions and its related comorbidities.

It is recommended to design further prospective studies with larger sample size including other geographical regions. Moreover, it is recommended to design more interventional studies in order to educate parents of diabetic patients in order to improve family life quality of T1DM patients.

By presenting the results of this study to health care providers, they could provide effective strategies in order to facilitate the management process of T1DM for families and caregivers which would be result in better family life quality and quality of care for this high-risk patients and their families.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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