

Affective responses of the parents after diagnosis of type 1 diabetes in children

Sedigheh Talakoub¹, Mahmoud Nasiri²

ABSTRACT

Background: These days, diabetes is deemed as one of the most important health and social-economic problems of the world. Since parents play a major role in treatment of diabetes, the most important part of managing diabetes is in the hands of the parents of children affected by diabetes. This special responsibility will increase the stress and family challenges and impacts parents' emotional responses. The affective reactions or responses of the parents can also be conveyed to the child himself and reduce self-care, increase glucose levels, increase the possibility of complications and reduce the quality of life. Thus, it is highly important to recognize the affective reactions of parents during various stages of the disease for the purpose of intervention.

Materials and Methods: All parents of children diagnosed with insulin-dependent diabetes who referred to Sedigheh-ye-Tahereh Endocrinology and Metabolism Research Center, Isfahan, Iran, were selected and the Symptom Checklist-90 (SCL-90) was filled in five stages (immediately, one month, three months, six months and twelve months after diagnosis). Convenient sampling was used to select 45 consecutive subjects out of whom 10 dropped out during the study.

Findings: The major problems of the study subjects at the beginning of diagnosis were depression, anxiety and physical problems, respectively. Three, six and twelve months later, they were depression, obsession and physical problems. Over time, the mean score of parents' affective reactions declined which indicated the acceptance of the disease by parents over time.

Conclusions: In view of the fact that both mother and father of children with diabetes suffer from affective problems and since fathers refer to diabetes centers less than mothers, some decisions should be made to mentally support both fathers and mothers.

Key words: Affective responses, parents, after diagnosis, type 1 diabetes, children

¹ MSc, Department of Pediatric Nursing, School of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.

² MSc, Department of Psychiatric Nursing, School of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.

Address for correspondence: Sedigheh Talakoub, MSc, Department of Pediatric Nursing, School of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.

E-mail: Talakoub@nm.mui.ac.ir

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INTRODUCTION

Type I insulin-dependent diabetes is the most common endocrine and metabolic disorders during childhood and adolescence which greatly influences both the physical and emotional development of individuals^[1] and have some long term complications such as nephropathy,^[2] neuropathy^[3] and retinopathy.^[4,2] According to the latest figures, more than 246 million people around the world suffer from diabetes.^[3] The number of diabetic people around the world was between 151 to 171 million people in 2000, which will reach 366 million people till 2030.^[4] According to the annual report, there is a 2 to 5 percent of increase in Europe, Middle East and Australia. The highest prevalence has been reported for Finland (37 to 45 for every 100000 children under 15 years old). This figure is about 400 times as much as that in Venezuela and China with the least prevalence (0.1 to 0.5 in every 100000 children). In the U.S.A, type I diabetes, even by the increase of type 2 diabetes, accounts for approximately two-thirds of diabetes new cases for under 19 year old patients.^[5]

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According to 2006 census, the population of Iran reached 70 million people, of whom 15435355 people were 10 to 19 years old.^[6] The frequency and diagnosis of diabetes among Iranians is 8.1 and 5.1% for males and 10 and 4.7% for females.^[7] According to statistics, one in every one thousand Iranian adolescents is affected by diabetes.^[6]

Chronic diseases cause some biological,^[1] psychological,^[2] cultural and social challenges and have strong impacts on quality of life, biology,^[3] psychosocial aspects of the patients, their family members and caregivers.^[8] Family is considered as a semi-closed institution in which all members interact. If an event influences one of the members, it will also have effect on all other members inside that institution.^[9] Having a depressed parent will double the risk for children. If both parents are depressed, it is four times as possible for children to have mood disorder as compared with children with healthy parents.^[10]

Parental emotional adaptation influences the parents of the affected child and will develop some emotional turbulences and psychological complications in them. Accordingly, it is stated that whenever a child is affected by diabetes the related physician has to visit two patients.^[9] During acute diabetes, both the child and the family are responsible for diabetes treatment. This special responsibility will increase stress and the family problems^[11] and lead to conflicts between the child and his/her parents.^[12] In addition, it will affect the mental health and both mental and behavioral performance of parents.^[13] The parents are often afraid of disease symptoms of which are sensibly exposed to others and this will result in their isolation and adding a feeling of loneliness to their depression.^[8] The parents are often experiencing shocks, depression, anger, anxiety, feelings of guilt and shame, disease denial and frustration. These stresses provide hindrances in the way of individual performance regarding social, physical, psychological and family areas. The psychological variations such as increased irritability, neurological state and inability to have self-control will result in chaotic family and social relations. Nematpour and Shahbazian^[9] mentioned a study conducted in Saudi Arabia by Flimban et al. about the psychological aspects of mothers whose children are affected by type I diabetes. The research's results showed that 27.7 percent of these mothers suffer from the mental problems and the most problematic areas regarding mothers reported in this study included insomnia, emotional instability, fear, feeling of fatigue, inability to concentrate, depression and anxiety.^[9] Besides, in another study conducted by Koizumi entitled "Responses of

Japanese mothers to their children's diabetes diagnosis", the results showed that Japanese mothers demonstrated feelings of shock, defense, isolation and the increased anxiety at the first stage of diabetes diagnoses and they also suffered from depression, weight loss, pain, feeling of fatigue. However, they found a good adaptability after one year. Also, this study showed that some of its results were in contrast with the studies conducted for American mothers and this difference had been probably related to their own cultures.^[14] The parents' affective responses influence on their efficiency to take care of their own child,^[13] and it plays a crucial role in metabolic monitoring of their child.^[8] In this respect, a study was conducted by Berg et al. entitled monitoring and adaptability of parents over the diabetic children's metabolic control. The results showed that the adaptability level of parents with disease of child was best in cases where it was accompanied by metabolic control. However, the monitoring of the disease by the fathers had a better impact on the child's metabolic control than the ones performed by mothers.^[15]

MATERIALS AND METHODS

All parents were chosen after the diagnosis of insulin-dependent diabetes in their children by the endocrinologist and after admission to diabetes center of Amin Hospital of Isfahan University of Medical Sciences. Continuous convenient sampling was used to select 45 parents out of whom 10 people dropped out during the study. The sampling was carried out from October 2001 till February 2003. The Symptom Checklist-90 (SCL-90) questionnaire with 9 different dimensions (physical complaints, obsession and compulsion, sensitivity in the interpersonal relationship, depression, anxiety, aggression, phobia, paranoid thoughts and psychosis) was given to parents in 5 different stages (immediately, one month, 3 months, 6 months, and 12 months after diagnosis). Statistical tests of paired t-test, repeated measure, t-test, Pearson's and Spearman's correlation coefficients and one way ANOVA were used to analyze the data.

The questionnaire consists of two parts:

- 1- Personal specifications
- 2- Affective reactions

The SCL90 questions consists of 5 level Likert style of emotional discomfort ranging from score zero for null to four for severely.

The inclusion criteria were:

- I- Parents with only one child with type I diabetes, who

- is not affected by any other chronic diseases.
- 2- There is no recent stress (death, divorce, etc.) during the sampling stages.
 - 3- Parents are ready to complete the questionnaire.
 - 4- Parents are not affected by any chronic disease or mental disorder

FINDINGS

The research findings demonstrated that major problems of the subjects during the preliminary stages of diabetes diagnosis in children included depression (17.43), anxiety (11.2), obsession (11.02) and physical complaints (10.68) respectively, and paranoid (5.14), aggression with mean of 4.14, relationships with mean of 3.97, psychosis with mean of 3.54 and phobia with mean of 1.71 are considered as other problems. One month after diagnosis, major problems of the studied subjects were respectively depression (11.97), obsession (9.2), anxiety (8.37), physical complaints (7.74) and the paranoid thoughts and sensitivity in interpersonal relations and psychosis and phobia having mean of 4.88, 3.91, 3.08 and 1.42, following other problems in order. Three months after diagnosis, major problems of studied subjects were respectively depression (9.9), obsession (5.68), physical complaints (5.6), paranoid with mean of 3.42, relationships with 2.71, aggression with mean of 1.71 and phobia with mean 0.97 were ranked as the next category. Six months after the diagnosis, major problems of the studied subjects included depression with mean of 5.54, obsession with mean of 3.54 and physical complaints with mean of 3.31, paranoid with mean of 2.25, relationships, anxiety with mean of 1.54, aggression with mean of 1.28 and psychosis with mean of 1 respectively followed in order. Twelve months after diagnosis, major problems of

the studied subjects were depression with mean of 3.6, obsession with mean of 2.05, physical complaints with mean of 1.94 and paranoid with mean of 1.31, anxiety and relationships with mean of 0.68, psychosis with mean of 0.6 and aggression with 0.48 and phobia with mean of 0.25 followed in order.

The variance analysis test with repeated measure of observations indicated that passage of time has impacted the scores and over time, the mean score of mothers' affective reactions reduced which indicated acceptance of children's disease on the part of parents. In addition, paired t-test indicated that the mean of the affective reactions during all times and in pairs had significant differences. Also, the Spearman's statistical test showed that there was a significant relationship between parent's education and mean difference of sensitivity in interpersonal relations during stages I and 5 ($F = 0.27$ and $p < \%5$), mean difference of depression during stages I and 5 ($F = 0.38$ and $p < 0.11$), mean difference of anxiety during stages I and 5 ($F = 0.29$ and $p < 0.04$), mean difference of aggression during stages I and 5 ($F = 0.30$ and $p < 0.03$) and the mean difference of paranoid thoughts during stages I and 5 ($F = 0.305$ and $p < 0.03$).

ANOVA during the first stage of sampling showed that the obsession, depression, anxiety, physical complain, phobia in the studied components had significant relationship with the family's occupation. Also, there was a significant relationship between the mean difference of obsession during stages I and 5, mean difference of depression during stages I and 5, mean difference of sensitivity in interpersonal relations during stages I and 5, mean difference of phobia during stages I and 5 and the father's occupation.

Table 1. Demographic attributes affective responses and their relations

Demographic Attributes Affective Responses	Occupation		Child's Gender		Parents' Gender		Test	P
	Employee	Self-employed	male	Female	Male	Female		
Obsession mean difference during stages 1 & 5	12.07	6.90			10.42	15.44	$F = 4.44$ $T = 1.92$	$p_1 < 0.04$ $p_2 < 0.03$
Depression mean difference during stages 1 & 5	17.50	11.19					$F = 6.07$	$p < 0.01$
Anxiety mean difference during stages 1 & 5	14	8.19					$F = 5.61$	$p < 0.02$
Sensitivity in interpersonal ties mean difference during stages 1 & 5	5.57	1.76	4.95	1.06			$F_1 = 6.87$ $F_2 = 2.71$	$p_1 < 0.01$ $p_2 < 0.05$
Phobia mean difference during stages 1 & 5	2.50	0.76					$F = 4.24$	$p < 0.04$
Aggression mean difference during stages 1 & 5					6.89	4.04	$T = 2.37$	$p < 0.01$
Paranoid thoughts mean difference during stages 1 & 5			5.15	2.06			$F = 1.95$	$p < 0.02$

The t-test showed that there was a significant relationship between obsession, depression, anxiety, physical complaints, first stage aggression, phase 5 depression and the gender of the studied components. Also, it showed that there was a significant relationship between phases I and 5 of obsession, mean difference of phases I and 5 of aggression and the gender of the studied components. In addition, t-test showed that there was a significant relationship between sensitivity of interpersonal ties of stage I and obsession of stage 2 with gender of the diabetic child and mean difference of paranoid thoughts in stages I and 5 and mean difference of sensitivity in the interpersonal relations during stages I and 5 had a significant relationship with gender of diabetic child.

Pearson's statistical test showed that there is a significant relationship between number of children and the sensitivity mean difference during stages I and 5 ($F = 0.47$ and $p < 0.002$), mean difference of paranoid thoughts ($F = 0.42$ and $p < 0.006$) and mean difference of psychosis during stages I and 5 ($F = 0.33$ and $p < 0.02$). Also, it shows that there was a significant relationship between the birth order and the sensitivity in interpersonal relations mean difference during stages I and 5 ($F = 0.33$ and $p < 0.02$) and the paranoid thoughts mean difference ($F = 0.395$ and $p < 0.009$) (Table I).

DISCUSSION

The research findings showed that major problems of studied subjects at early stages of child's diabetes diagnosis were depression, anxiety, obsession and physical complaints, respectively. And one month after diagnosis, they were depression, obsession, anxiety and physical complaints and three months later, the problems were depression, obsession and physical complaints, respectively and over time, the mean score of the parents' emotional responses decreased, which indicated that they accepted their child's disease over time.

Whenever the child is diagnosed to have diabetes, members of a family especially parents usually feel shocked and sad and they experience affective reactions such as anger, anxiety, feeling of guilt and shame and sometimes there are continuous feelings of denial of child's disease, frustration and sorrow. Nematpour and Shahbazian^[9] referred to a study by Staten that showed diagnosis of diabetes in children will develop emotional turmoil in the affected child and also his/her parents.

Nematpour and Shahbazian realized in their own study that major problems stated on the part of the children include anxiety and depression, and over time, parents

became more consistent and adapted to their child's disease. Besides, study of Gette and Boam reported high incidence of psychological problems in parents of diabetic children which Nematpour and Shahbazian mentioned about in their study.^[9]

The mean of parents' affective responses was examined with the level of their education. The research findings showed that depression, anxiety, sensitivity in interpersonal relations has been higher in parents having higher education. However, one year later it has been reduced. Shahrin in his study showed that depression was higher in individuals having low education levels.^[16] In addition, Nematpour and Shahbazian in their own research found a relationship between parents' stress levels and their education levels.^[9]

Also, other researches showed that obsession, depression, anxiety, physical complaints and phobia were in higher levels at the preliminary stages of diagnosis. However, one year later these emotions decreased. Increased levels of these responses at the beginning of diagnosis and their mitigation one year after diagnosis can be attributed to the higher education levels in employees.

Dehghi Arough showed in his study that some personal attributes like income and education level of parents had relationship with the mental pressure experienced by them.^[17] More works and lower financial power will result in increasing mental pressures.^[18]

Also, the results indicated that obsession and aggression were higher in fathers at the beginning of diagnosis and physical complaints and depression were more in mothers one year after diagnosis. Obsession and aggression decreased one year after diagnosis. Based on a study, 22 percent of children with type I diabetes experienced depression after diagnosis. In addition, in another study, mothers experienced more anxiety and depression than fathers.^[19]

According to epidemiologic findings, women are at the risk of depression and men are at the risk of behavioral disorders.^[20] The female to male ratio of anxiety is 2 to 1 and that for physical complaints is 5 to 1.^[10]

Other findings showed that sensitivity in interpersonal relations at the beginning of diagnosis was higher in parents who had a male diabetic child and obsession was higher in the parents who had female diabetic children one year after diagnosis. The paranoid thoughts and sensitivity in the interpersonal relationships decreased one year after diagnosis, in parents who had a male diabetic child. The result of increased obsession one year after

diagnosis can be due to the concerns of parents about marriage and future of their daughter. The affective responses developed in parents toward their diabetic son can be linked to the society's culture.

Dehghi Arough showed that the personal attributes like gender has a relationship with mental pressure experienced by parents.^[17] Also, Golchin showed that majority of parents having sons stated intense stress amounts.^[21]

Other findings showed that sensitivity in interpersonal relationships, paranoid thoughts and psychosis at the beginning of diagnosis increased by increase in the number of children and birth order and decreased after one year. Dehghi Arough showed in his study that personal attributes like number of children has a relationship with mental pressure on parents.^[17] Hamzeie found that depression is higher in families with more members.^[18] Golchin found that parents having 3 or 4 children reported intense levels of stress.^[21]

Nematpour and Shahbazian found that major problem reported by parents is anxiety and depression and referred to Gett and Boam that reported higher incidence of psychological problems in parents having diabetic children.^[9]

CONCLUSION

In general, living a life with diabetes hurts affective responses or reactions of both the child and his/her parents and can influence self-care behaviors and finally, it may have some adverse impacts on the long-term monitoring of blood glucose, risk of long-term increased complications of the disease and the quality of life of the patients. Therefore, we strongly recommend that there be a psychologist and/or psychiatric nurse for both parents and diabetic children in all endocrine and metabolism research centers.

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