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Evaluation of Stress, Anxiety and Depression in Parents with a Child Newly Diagnosed with Diabetes Type I

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Abstract

Background

Diabetes type I (DTI) is one of the most common endocrine disorders during childhood and adolescents in which has strong impact on physical and emotional development of individuals with family members. We aimed to evaluate of stress, anxiety and depression in parents with DTI child compared with parents with healthy child.

Materials and Methods

In this case – control study, 60 parents of patients with type 1 diabetes, who had referred to the endocrine clinic of Ali Asghar hospital in Zahedan city and the same number of parents with healthy children, who had referred to the hospital for their children's routine checkup, as control group (n=60), were studied. Depression, anxiety and stress was measurement by Depression Anxiety Stress Scale 42 (DASS). Data were analyzed using SPSS-16.

Results

Mean age of children was 6.3 ± 3.6 years. In this study, the score and rate of depression in parents of children with diabetes type I was 21.4 ± 13.8 and 75.4%, respectively. The scores of depression, anxiety and stress in parents of children with DTI were 21.4 ± 13.8, 18.8 ± 11.3 and 27.1 ± 11.5 respectively. Also, the scores of depression, anxiety and stress in parents with healthy children were 14.8 ± 11.3, 8.7 ± 6.9 and 15.8 ± 9.3, respectively; and these scores was significantly lower in control group ($P<0.05$). Six months later of the diagnosis, depression, anxiety and stress did not changed in parents of patients with diabetes type I ($P>0.05$).

Conclusion

Diabetes in children is a stressful event that can affect the public health of parents. Parents of children who diagnosed with DTI, are at risk for experiencing anxiety, depression and stress.

Key Words: Anxiety, Depression, Diabetes mellitus, Parents, Stress.

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1- INTRODUCTION

Chronic diseases during childhood are the most difficult experiences for families, because parents may feel that they have lost their ability to protect their child against the illness (1). Diabetes type I (DTI) is one of the most common endocrine disorders in childhood span and adolescents. Diabetes mellitus similar to other chronic condition can cause a serious inquietude in children and their family. Needs to be noted that about 246 million people suffer from diabetes around the world, so that there were 151 to 171 million diabetic people in 2000 and this number of patients will reach to 366 million in 2030 (2, 3). Prevalence rate of diabetes is between 7.8% and 15.5% among different ethnic groups (4).

Different prevalences of diabetes were reported in Iran. For instance, reported that the prevalence of type II diabetes is 4-4.5% in general population, greater than 14% in population aged above 30 years (5), about 7.7%, for the 25 to 64 age group (6) and the International Diabetes Federation (IDF) has reported that the prevalence of diabetes in Iran is 9.3% for the age group of 20 to 79 years in 2010 (7). On the other side, DTI has strong impact on physical and emotional development of individuals and it is increasingly prevalent worldwide (8); and causes some biological, psychological, cultural and social challenges and have strong impacts on quality of life, biology, psychosocial aspects of the patients, their family members and caregivers (9).

The role of family members and caregivers has been considered and recognized as crucial key for adaptation to positive diabetes-related behaviors of children with diabetes from diagnosis until they become independent (10). In this mission has been repoted that the parents are clearly affected by their children's illness; for example, stress related to caring for a child with diabetes affects both parent and child in several important ways, including:

- increased risk for poor mental health outcomes among parents,
- potential impairment in parents' ability to learn illnessmanagement skills,
- increased stress experienced by the affected child, and
- A negative impact on children's diabetes self-management (11, 12).

Maureen Monaghan reported that the most common psychological disorders that parents with diabetic children faced with are stress, anxiety and depression. The prevalence of parental psychological distress ranged from 10% to 74%, with an average of 33.5%, but in the majority of studies, the prevalence of parental psychological distress ranged from 20% to 30%; and 19% of parents reporting a distress 1 to 4 years after diagnosis (13).

Clearly indicated that parents' psychological and behavioral functioning are important to care diabetic children and for these reasons this research aimed to evaluate stress, anxiety and depression in parents with DTI children in Zahedan city, South East of Iran.

2- MATERIALS AND METHODS

2-1. Population and sample

This case control study performed on 60 parents with DTI children considered as case group who had referred to the endocrine clinic of Ali Asghar hospital in Zahedan, the capital city of Sistan & Baluchestan province located in the South East of Iran, in the year of 2015. Same numbers of parents (n=60) were collected for the controls amongst those who reffered to the hospital for their children's rutine checkup. The collections of parents were done on accessibility accordance with their consent and criteria.

2-2. Inclusion and Exclusion Criterias

The inclusion criteria were having only one diabetic child with good level of economic status. The exclusion criteria were not having chronic disease, mental illness, stress because of sadness events such as relative's death and not divorced.

2.3- Methods

Parents were asked to fill out the DASS-42 inventory (**Table.1**) in two different stages (one and 6 months after diagnosis).

Table-1: Depression Anxiety Stress Scales (DASS) inventory

Questions	Rating Scale			
1. I found myself getting upset by quite trivial things	0	1	2	3
2. I was aware of dryness of my mouth	0	1	2	3
3. I couldn't seem to experience any positive feeling at all	0	1	2	3
4. I experienced breathing difficulty	0	1	2	3
5. I just couldn't seem to get going	0	1	2	3
6. I tended to over-react to situations	0	1	2	3
7. I had a feeling of shakiness (e.g., legs going to give way)	0	1	2	3
8. I found it difficult to relax	0	1	2	3
9. I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10. I felt that I had nothing to look forward to	0	1	2	3
11. I found myself getting upset rather easily	0	1	2	3
12. I felt that I was using a lot of nervous energy	0	1	2	3
13. I felt sad and depressed	0	1	2	3
14. I found myself getting impatient when I was delayed in any way (e.g., lifts, traffic lights, being kept waiting)	0	1	2	3
15. I had a feeling of faintness	0	1	2	3
16. I felt that I had lost interest in just about everything	0	1	2	3
17. I felt I wasn't worth much as a person	0	1	2	3
18. I felt that I was rather touchy	0	1	2	3
19. I perspired noticeably (e.g., hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20. I felt scared without any good reason	0	1	2	3
21. I felt that life wasn't worthwhile	0	1	2	3
22. I found it hard to wind down	0	1	2	3
23. I had difficulty in swallowing	0	1	2	3
24. I couldn't seem to get any enjoyment out of the things I did	0	1	2	3
25. I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
26. I felt down-hearted and blue	0	1	2	3
27. I found that I was very irritable	0	1	2	3
28. I felt I was close to panic	0	1	2	3
29. I found it hard to calm down after something upset me	0	1	2	3
30. I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
31. I was unable to become enthusiastic about anything	0	1	2	3
32. I found it difficult to tolerate interruptions to what I was doing	0	1	2	3
33. I was in a state of nervous tension	0	1	2	3

34. I felt I was pretty worthless	0	1	2	3
34. I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
36. I felt terrified	0	1	2	3
37. I could see nothing in the future to be hopeful about	0	1	2	3
38. I felt that life was meaningless	0	1	2	3
39. I found myself getting agitated	0	1	2	3
40. I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
41. I experienced trembling (eg, in the hands)	0	1	2	3
42. I found it difficult to work up the initiative to do things	0	1	2	3

2.4- Instrument and Measures

To measure needed psychological variables DASS-42 inventory was applie (**Table.1**). The DASS-42 is a 42-item self-report instrument designed to measure the three related negative emotional states of depression, anxiety and stress. Each of the three DASS-42 scales has 14 items. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, and lack of interest/involvement, anhedonia, and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient.

The DASS-42 was translated from English into Persian, the Iranian formal language and reviewed by a group of health professionals and research workers for rightness of language and cultural idioms and retranslated to English for verification.

Parents completed the DASS-42 as an individual structured interview with a trained health researcher. The parents were asked to use 4-point scales to rate the extent to which they have experienced each state over the past month. Each item comprises a statement and four short response options to reflect severity and scored from 0 (*Did not apply to me at all*) to 3 (*Applied to me very much, or most of the time*) (14).

Scores for depression, anxiety and stress were calculated by summing the scores for the relevant items accordance with **Table.2**. Each of the three sub-scales: (DASS42-D), Anxiety (DASS42-A), and Stress (DASS42-S) has 14 items.

The scores for depression, anxiety and stress are 0 and 42 as minimum and maximum respectively; and the suggested DASS-42 sub-scale severity ratings are shown in **Table.3**. Exploratory factor analysis (EFA) utilizing varimax rotation were performed to investigate the internal structure of all items and of each sub-scale.

The criterion chosen to determine that an extracted factor accounted for a reasonably large proportion of the total variance was based on an eigenvalue greater than one and the significance of an item factor loading was set at a coefficient level of 0.30 or greater.

The reliability coefficients (Cronbach's alpha) of our version (Persian version) of DASS-42 in our study were found of 89.1, 82.6 and 85.9%, for depression, anxiety and stress respectively. Accordance with the 0.7 cut-off point these reliability coefficients are acceptable for inventory validity.

Table-2: Items related to the different DASS-42 scales

Depression (D) Scale	Anxiety (A) Scale	Stress (S) Scale
3	2	1
5	4	6
10	7	8
13	9	11
16	15	12
17	19	14
21	20	18
24	23	22
26	25	27
31	28	29
34	30	32
37	36	33
38	40	35
42	41	39

Table-3: DASS42 sub-scale severity ratings (14)

Severity ratings	Depression (D)	Anxiety (A)	Stress (S)
Normal	0 – 9	0 - 7	0 – 14
Mild	10 – 13	8 – 9	15 – 18
Moderate	14 – 20	10 – 14	19 – 25
Severe	21 – 27	15 – 19	26 – 33
Extremely Severe	28 and more than 28	20 and more than 20	34 and more than 34

2-5. Statistical analysis

After data collection, they were entered into SPSS-18 and analyzed using statistical t-test and Chi-square. For the comparison of depression, anxiety and stress scores between case and control groups, t-test and for the severity levels of depression, anxiety and stress comparison Chi-square test were applied. The P-value less than 0.05 were considered as statistically significant.

2-6. Ethical considerations

All the participants gave written consent for taking part in the present study. The study has been extacted from a thesis presented for the degree of MD that had been approved by the Medical School's Ethical Committee of the Zahedan University of Medical Sciences- Iran and Health Services.

3- RESULTS

The results of the analysis showed that the mean age of patients was 6.3 ± 3.6 years. The gender distribution was 36(60%) and 24(40%) in boy and girl respectively. **Table.4** showed the percentages of parents in the various levels of depression, anxiety and stress. The percentage of parents who had sever level of depression was 33.3% and 19% for case and controls respectively. The percentages of parents with sever level of anxiety distributed of 47.4% and 4.8% for case and controls respectively. The percentage of

parents had the highest value for the normal level of stress (10.5%) in compare to the control group (47.6%). The percentage distribution of the parents for the anxiety and stress disorders showed that this distribution was not randomly or by chance. The score of depression in parents of children with DTI was 21.4 ± 13.8, score of anxiety 18.8 ± 11.3 and the score of stress was estimated as 27.1±11.5. Depression, anxiety and stress' scores for parents of healthy children were 8.14 ± 1.12, 7.8 ± 9.6 and 15.8 ± 9.3 respectively. The result of t-test analysis showed a significant difference between patients and healty parents in all Psychological disorders with the significant differences (P<0.05) (**Table.5**).

Six months after the initial survey depression, anxiety and stress in parents of patients with type I diabetes were measured. The measures were equal to 19.8 ± 11.2, 16.7 ± 9.6 and 24.9 ± 10.2 for depression, anxiety and stress respectively in which shows no significant changes after six months (P>0.05) (**Table.6**).

Table-4: The comparison of depression, anxiety and stress's levels in the case and control parents

Psychological disorder in groups of parents		Normal	Mild	Moderate	Extreme	Severe	P-value
Depression	Case	14(24.6%)	9(15.8%)	10(17.5%)	5(8.8%)	19(33.3%)	P>0.05
	Control	23(36.5%)	8(12.7%)	18(28.6%)	2(3.2%)	12(19%)	
Anxiety	Case	10(17.5%)	5(8.8%)	12(1.21%)	3(5.3%)	27(47.4%)	P<0.001
	Control	26(41.3%)	9(14.3%)	22(34.9%)	3(4.8%)	3(4.8%)	
Stress	Case	6(10.5%)	12(21.1%)	6(10.5%)	15(26.3%)	18(31.6%)	P<0.001
	Control	30(47.6%)	7(11.1%)	17(11.1%)	6(9.5%)	3(4.8%)	

Table-5: The comparison of depression, anxiety and stress scores in parents with DTI and healthy children

Psychological disorder	Case	Control	P-value
Depression	13.8±21.4	1.12±8.14	0.006
Anxiety	3.11±8.18	9.6±7.8	<0.001
Stress	11.5±27.1	9.3±15.8	<0.001

Table-6: The comparison of depression, anxiety and stress scores of parents with DTI in two points of time (early diagnosed and after 6 months)

Psychological disorder in groups of parents with DTI child	Early diagnosed	After 6 months	P-value
Depression	21.4±13.8	11.2±19.8	0.503
Anxiety	11.3±18.8	9.6±16.7	0.208
Stress	11.8±27.1	10.2±24.9	0.235

4- DISCUSSION

The results of the present study revealed that the scores of depression, anxiety and stress in parents with newly diagnosed diabetic child were higher than compared the parents with healthy children. Six months after diagnosis of diabetes, parental depression, anxiety and stress were reduced, but this reduction was not significant. Polcari showed that some psychological behavior such as obsession and aggression are higher in fathers at the beginning of diagnosis chronic illness in their children when physical complaints and depression were more in mothers in early and one year after diagnosis (15).

Members of family, especially parents have pivotal role in taking care of children with chronic illnesses. Whenever the child was diagnosed for having diabetes parents usually feel shocked and sad and starting to experience affective reactions such as anger, anxiety, feeling of guilty and shame (16). There sometimes are continuous feelings of denial of child's disease, frustration and sorrow. When parents are involved with a lower role in the care of children with diabetes their children employ less proper care of themselves. On the other hand, having a child with a chronic illness is frightening and disturbing for parents (17).

The results of many studies in these areas have shown that diagnosis of diabetes in children creates emotional turmoil in their household specially parents (3-7). Fritsch showed that obsession and aggression decreased one year after diagnosis and 22% of children with DTI experienced depression after diagnosis (18). Kovacs explained that women were at the risk of depression and men were at the risk of behavioral disorders (11).

Talakoub and Nasiri reported that in Saudi Arabia, 27.7% of mothers with diabetic children suffered from psychological problems such as fear, insomnia, emotional instability, suffering fatigue and lack of concentration, in which was much less than our results; they also found that the major problems for the parents were depression, anxiety and physical impairments at the beginning of their child's diabetes diagnosis. The parents were depressed, obsessed and had health problems aftre three, six and twelve months. The emotional reactions of parents had declined in which shows the parents' acceptation their children's diseases during the time (9). In our study we faced with the same results. In Japanese mothers, sense of shock, anxiety and increasing isolation in the early stages of diabetes have been observed. These behavioral responses of parents make an impact on the care of the children of metabolic control in the child's with diabetes (19). Fritsch found that 22% of mothers with TDI children had experienced depression after diagnosis higher than fathers (18).

In Malerbi research discomfort, anxiety and depression were the main complaint in the EuroQol five dimensions (EQ-5D) questionnaire (20) and the rates were significantly higher in mothers compared to fathers and most of the parents changed their functional proformance after diagnosis (21). Streisand et al. (22), resulted that parents of children with diabetes type I are at risk for depression and anxiety, and this rate is higher in mothers than fathers. Has been shown that mood and behavioural disorders are much in parents and must act to offer psychological, medical and social' support for them (23).

In some studies demonstrated that distress of parents with DTI children decreased slightly over time in which consisted with our results (24-26). According to the mentioned subjects it would be considered that the situation of children who suffering from chronic diseases such as diabetes affects household mental condition, especially parents. Applying appropriate

strategies to identify and reducing parental stress and eliminating psychological problems would be lead to accept, control and follow-up treatment and monitoring glycemic diet in patients.

4-1. Limitations of the study

Getting consent from parents for admission after 6 months to fill out the DASS inventory.

5. CONCLUSION

The findings of the present study have implications for clinical practice, and focus the importance of integrating medical and psychosocial services for the parents of children diagnosed with DTI. It may be helpful to assess mothers and fathers in the early weeks after their child has been diagnosed with diabetes to establish the need for professional support, or at least to provide them with information about how to contact services at a later date if they feel it necessary.

6- CONFLICT OF INTEREST

The authors would like to declare no conflict of interest

7- ACKNOWLEDGEMENTS

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