ORIGINAL ARTICLE

The Study of the Perceived Social Support and Its Relationship with Glycosylated Hemoglobin in Children and Adolescents Suffering from Type I Diabetes

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Abstract

Background

Many sufferers of Type I Diabetes, as they are young, need support in order to be able to continue their care; therefore, to have social support could have a role in improving the metabolic control. Accordingly, the present study was done in order to determine the perceived social support and its relationship to the glycosylated hemoglobin in the children and adolescents who suffer from the Type I Diabetes.

Methods

This analytic study was conducted on 99 subjects, based on their availability, composed of children and adolescents suffering from Type I Diabetes who referred to the Endocrine and Metabolism Research Center in Isfahan. The collected data, after confirming the validity and reliability, were completed by the subjects and then analyzed using SPSS software (version 18).

Results

In association with the perceived social support, 48.5% of children and 16.7% of adolescents enjoyed acceptable levels. In comparing the average scores regarding the perceived social support of children and adolescents, a significant statistical difference was observed ($P<0.02$) which showed that social support for children was more. In the study on the relation between the perceived social support and the glycosylated hemoglobin in children, the correlation between the perceived social support and the amount of glycosylated hemoglobin ($P<0.01$) was significant.

Conclusion

Regarding the direct relationship between the amount of glycosylated hemoglobin and the perceived social support in children and adolescents, the family support and planning the team educational and practical programs and policies focusing on the purpose of self-care and thereupon, the satisfying control of diabetes is of utmost necessity.

Keywords: Type I diabetes; Perceived social support; Glycosylated hemoglobin; Self-care

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Introduction

Type I Diabetes, previously known as insulin-dependent diabetes or juvenile, has been one of the different diabetes whose characteristic feature is the destruction of pancreatic beta cells. The interaction between genetic, immunological (auto immune) and environmental factors leads to Type I Diabetes and genetic potentiality is the most pervasive field factor of suffering from this type of diabetes.[1,2] The peak of this type of diabetes for young girls is between 10 to 12 years old and for young boys between 12 to 14 years old. Diabetes has various short- and long-term symptoms which are irreversible in many cases.[3,4] Therefore, the outbreak of incidence and mortality and symptoms of diabetes as well as economical expenses and the personal and social burden resulting from it emphasize the immediate requirements to help these patients to better control the disease.[5]

The research done on the individuals of various age groups showed that the permanent self-control and self-care require the support and help of those people who have a permanent role in the patient's life.[6] In fact, the social support means where a person understands or experiences the times people love him or her, support him or her, and respect him or her.[7] The understanding that the person enjoys the social support has such a significant importance that the perceived social support could be as useful as or more useful than a real social support.[8]

To devolve responsibilities without enough support from parents results in decrease in the following treatment in this time which it could lead to health-care expenses and psychological distress as well as facilitation of the start and improvement of the disease's long-term symptoms.[9] Family and parents have pivotal roles in caring the adolescents suffering from the chronic diseases. When parents have fewer roles in caring their adolescents suffering from diabetes, their child pays less attention to their care. As a result, this group needs both psychological and emotional support in order that they could cope with the disease and keep on their treatments.[10]

While the diabetic person's relatives use the wrong supportive behaviors in dealing with the disease, there is opposite effect on conducting self-care programs and in cases where the relatives adopt the reinforcing positive behaviors, there would be a better result and the diabetic patient could better cope with the therapeutic programs.[11]

The non-supportive interaction of the family predicts the poorer attention to self-care programs and persons who receive support from their families and friends enjoy higher levels of self-care behavior regarding diabetes.[8] Also, when the patient increases the perceived social support, it leads to the increase in his attention to self-care behaviors.[12]

Some studies show that those diabetic adolescents who enjoy more supports from their families have a better metabolic control in comparison with those who have less support and these supportive behaviors can be useful in diabetic self-management of the adolescents.[13] According to the advice offered by the American Diabetic Association, the glycosylated hemoglobin should be measured two times a year at least and in cases in whom it is less than 7%, the care regarding blood sugar level would be desirable and this amount should be below 8% for ages of 6 to 12 and below 7.5% for ages of 13 to 19.[14]

In many studies, the relationship between the social support and the blood sugar control and the glycosylated hemoglobin has been considered.[15-19] Since there is no study on the social support of diabetic children from families in Iran, the present study was conducted with the aim of identifying the perceived social support and its relationship to the glycosylated hemoglobin in children and adolescents suffering from Type I Diabetes.

Materials and Methods

This analyticel study was conducted on the children and adolescents suffering from Type I Diabetes, who were in school age between 10

to 17 years old and referred to the Endocrine and Metabolism Research Center in Isfahan in the first half of March-September 2012. These individuals had records in the center, regarding the conditions of entering the study including at least one year after the diagnosis of diabetes.[20]

Those not suffering from any other chronic disease but diabetes or the thyroid problems,[21] were selected. The ethical considerations including the permission from the Endocrine and Metabolism Research Center, the explanation of the aim of the study to the subjects and the reassurance about the confidentiality of the information obtained, the optional participants' consent to participate in research freely, anonymous questionnaire completed by the participants, and the participants' free withdrawal from the study at any time of the survey were considered. 147 children and adolescents suffering from Type I Diabetes were selected, but finally 99 of them who had inclusion criteria and consented to participate, took part in the study.

The data were collected using a two-part researcher-based questionnaire. The first part included demographic information such as age and gender and the recorded information (the amount of the glycosylated hemoglobin during the last 6 months) and the second part included questions related to the families' social support specially parents' (including 10 items). The questionnaire was prepared by referring to the literature and correspondence with authors and after editing, its validity was confirmed by the use of content validity by 10 professors of the School of Nursing and Midwifery and Endocrinology and Metabolism Research Center. Its reliability was confirmed using test-retest with Cronbach's alpha (α=0.85).

As to the perceived social support, we used five-point Likert scale including 5 items of always, often, sometimes, rarely or never with the range from score 5 (highest score) to score 1 (lowest score) and these scores were rated into three groups of very good, good, fair and poor. The total score for the perceived social support from the sum of the obtained scores regarding the number of questions was calculated as 50 and the range of total score was considered as 10 to 50. From question 1 to 4 (related to non-supportive behaviors), the maximum score belonged to the answer "never" and from the question 5 to 10 (related to supportive behaviors) the maximum score belonged to the answer "always" and the minimum score to the answer "never". The collected data were analyzed in SPSS software, version 18, using t-tests and Pearson correlation coefficient with 95% confidence interval. $P<0.05$ was considered as the significance level.

Results

Of 99 patients participating in the study, 59.6% were female and 40.4% male and their average age was 13.97±2.48. The average amount of the glycosylated hemoglobin in the last 6 months in children was 8.58%±1.75 and that in adolescents was 8.55%±1.86.

In the area of perceived social support, 48.5% of the children were in the very good level; however, 16.7% of the Adolescents were in this level. No subjects suffered from poor social support (table 1).

In comparison of the perceived social support in the subjects, the average scores of

Table 1: Comparison of perceived social support associated with diabetes in children and adolescents

Social support / Group	Very Good		Good		Medium		Weak		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Children	16	48.5	15	45.5	2	6.1	0	0	33	100
Adolescents	11	16.7	44	66.7	11	16.7	0	0	66	100

children and adolescents showed a significant difference. In this case, the significant level was equal to 0.002, and the 95% confidence interval for the average rating difference of children and adolescents showed that the magnitude of social support in children was more than that in adolescents. In comparison of the perceived social support, there was no significant difference in boys' and girls' average rating.

Regarding the relationship between perceived social support and glycosylated hemoglobin in the children ($P<0.05$), the correlations between the social support and the glycosylated hemoglobin level were significant and the correlation coefficient between these two factors was significant and equal to 0.015, whereas when the magnitude of the social support increased, the amount of the glycosylated hemoglobin in the children decreased. But no significant relationship was observed between the social support and amount of the glycosylated hemoglobin in the adolescents (table 2).

Discussion

According to the advice offered by the American Diabetic Association, when the amount of the glycosylated hemoglobin in diabetic patients is less than 7%, the patients' care about the blood sugar is desirable and this amount should be below 8% for the ages between 6 and 12 and below 7.5% for the ages between 13 and 19.[14]

In the present study, the average of the glycosylated hemoglobin in both kid and teenage groups was more than the amount advised by the American Diabetic Association. The findings of a study on the patients suffering from the Diabetes Type I indicated that the average glycosylated hemoglobin in the patients with a poor control of diabetes was 9.3% and in those with a desirable control it was 7.1%.[22]

In the present study, the average glycosylated hemoglobin was 8.5%. in the subjects During completion of the questionnaire by the participants, it was identified that some subjects were not aware of the exact amount of their glycosylated hemoglobin. Studies of Heisler et al. indicated that those individuals who were aware of the amount of their hemoglobin A_1C evaluated their control of diabetes more accurately than the others, and also understood and reported their diabetes care better. According to the their findings, the awareness of the hemoglobin A_1C was not enough, so other guidelines should be adopted to manage diabetes in the patients more efficiently.[23] Therefore, to train the children and adolescents' families, especially their parents, about the importance of the glycosylated hemoglobin and the parents' support of children for the desired control of their blood sugar level are necessary.

Another study showed that diabetic patients had 58.1% of the total score regarding the perceived social support, the families' non-supportive behaviors of the women were more than men significantly, and the total perceived social support had a direct and significant correlation with the self-care behaviors.[24] In the present study, a significant difference was not observed in the social support of both genders. According to the findings of another study, one of the obstacles for diabetic patients regarding the compliance with nutritional recommendations was the lack of social and family supports and those receiving more

Table 2: The mean scores of perceived social support and the amount of HbA_1c

Perceived social support	Mean±SD	Standard error of the mean	*t* test		Mean Hb A_1c	The correlation coefficient
			Test statistics	P value		
Children	38.606±5.771	1.005	3.253	0.002	8.581	0.015
Adolescents	34.758±5.435	0.669			8.555	0.266
Female	35.915±6.237	0.812	-0.259	0.796		
Male	36.215±5.196	0.821				

support from their families accepted the diet and complied with it more easily.[25]

In the present study, it is expected that children would adopt self-care measures better than the adolescents because they enjoy more social supports. In comparison of the perceived social support, there was no significant difference in the average rating of girls and boys. But, the study of Helgeson et al. showed that a better control of blood sugar level, especially in teenage girls, is related to a good family relationship as well as parents' support which is considered as an independent factor in self-care and the metabolic control in girls.[26]

The results of other studies showed that social support in diabetic patients is not in a desired condition.[27,28] This was not confirmed by the present study. This may be because of the total investigation of these studies in diabetic patients including Type I Diabetes and II; therefore, further studies, especially on the age groups of children and adolescents, are required in the area of the magnitude of social support.

Another study showed that family support from girls or patients with lower degrees of disease led to their tendency toward treatment, while the family conflicts influenced control of blood sugar level in patients with higher degrees of disease; thus, the quality of life will be improved only in the case of social support for both girls and boys and lack of family conflicts. It emphasizes the necessity of investigating various family types and cultural factors influencing diabetic adolescents as well.[29]

This study, conducted in Iran for the first time, could be a base for the future studies in the area of social support and self-care in this age group. The potential limitations and weak points of the present study could be the low number of subjects and limited research environment which should be considered necessarily in future studies.

Conclusion

Regarding the findings of the present study, it could be concluded that the main cause of deficiencies in the self-care of the subjects is lack of training to improve the families' supportive behaviors and to prevent non-supportive behaviors in self-care of both children and adolescents' age groups. Therefore, to improve self-care and desired control of diabetes in children and adolescents suffering from diabetes requires consultation with parents and holding educational and practical programs for families with a focus on increase in supportive behaviors and decrease of non-supportive behaviors so that finally these measures lead to improvement in the performance related to self-care and control of blood sugar level in these patients.

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References

1 Zolfaghari M, Arezoomanias S, Shariat E, et al. Complete nursing courses.7th ed. Tehran: Boshra Publishing Center; 2009. [In Persian]
2 Harrison. Harrison's Principles of Internal Medicine. Diseases of Metabolism and Endocrine System. Interpreter: Zarei Sh, Mortazavi M. 1st ed. Tehran: Andishe Rafi&semat Publications; 2008. [In Persian]
3 Research Institude for Endocrin Science, Shahid Beheshti University of Medical Sciences. Diabetes. 2011. [Cited 18 December 2011]. Available from: http// erc.endocrine.ac.ir. [In Persian]
4 Shojaeizadeh D, Shakibazadeh A, Rashidian M, et al. Comparing views of

patients with type 2 diabetes about Factors influencing self-care: with diabetes specialist staff; a qualitative study. Iranian J Diabetes and Lipid Disorder. 2010; 9:142-51. [In Persian]
5 Didarloo AR, Shojaiezadeh D, Eftekhar H, et al. Physical activity among women with type 2 diabetes: prediction by the extended theory of reasoned action. J Payesh. 2012;11:201-11. [In Persian]
6 Sajjadpoor Z. Improving diabetes care in diabetic youth. The importance of self-efficacy. J Diabetes Message. 2011;52:20-2.
7 Khodapanahi MK, Saleh Sedghpoor B, Asghari A, et al. The structural relationships between social support and hope in patients with cancer. J Psychology. 2010;14:284-98.[In Persian]
8 Rahimian Boogar I. Effects of socio structural determinants and participative decision making in diabetes self-management: Consideration in moderator role of patient's beliefs system. PhD thesis. Tehran University: Faculty of Psychology and Educational Sciences; 2010.[In Persian]
9 Schilling LS, KnaflK A, Grey M. Changing patterns of self-management in youth with type 1 Diabetes. J Pediatric Nurse. 2006;21:412-24.
10 Hemmati Maslakpak M, Feizi A, Ahmadi F. Parents' worries about Life Problems of adolescent girls with diabetes: a qualitative study. J Hayat. 2011;1:5-15.[In Persian]
11 Sharfi Rad Gh, Azad Bakht L, Feizi A, et al.The role of social support in self-care behavior of diabetes patients: a narrative review. J Health System Research. 2012;7: 636-47. [In Persian]
12 Zare Shahabadi A, Hajizade Meimandi M, Ebrahimi Sadrabadi F. Influence of social support on treatment of type II diabetes in yazd. J Shaheed Sadoughi University of Medical Sciences. 2010;18:277-83. [In Persian]
13 Marzilli G. The effects of social support on eating behavior in patients with diabetes. Social Support in Diabetes. Williams College; 2004.p.1-33.
14 American Diabetes Association.Standards of medical care in diabetes. Diabetes Care. 2011;34:11-61.
15 Okura T, Heisler M, Langa KM. Association between cognitive function and social with glycemic control in adults with diabetes mellitus. J Am Geriatr Soc. 2009;57:1816-24.
16 Chlebowy DO, Garvin BJ. Social support, self-efficacy, and outcome expectations: impact on self-care behaviors and glycemic control in Caucasian and African American adults with type 2 diabetes. Diabetes Educ. 2006;32:777-86.
17 Chew BH, Khoo EM, Chia YC. Social support and glycemic control in adult patients with type 2 diabetes mellitus. Asia Pac J Public Health. 2011; Dec 23. [Epub ahead of print].
18 Eriksson BS, Rosenqvist U. Social support and glycemic control in non-Insulin dependent diabetes mellitus patients: gender differences. Women Health. 1993;20:59-70.
19 Westaway MS, Seager JR, Rheeder P, et al. The effects of social support on health, well-being and management of diabetes mellitus: a black South African perspective. Ethn Health. 2005;10:73-89.
20 Behnam Voshani HR, Shirdelzadeh S, Ghasemi N, et al. Effects of teaching problem solving on self-management and glycosylated hemoglobin in adolescents with type I diabetes. J Sabzevar University of Medical Sciences. 2011;18:288-95. [In Persian]
21 Schneider S, Iannotti RJ, Nansel DL, et al. Identification of distinct self-management styles of adolescents with type 1 diabetes. Diabetes Care. 2007;30:1107-12.
22 Moayeri H, OloomiYazdi Z. Prevalence of dyslipidemia in children and adolescents with diabetes mellitus type I. Iran J Ped. 2006;16:171-76.[In Persian]
23 Heisler M, Piette JD, Spencer M, et al.

The relationship between knowledge of recent HbA_1c values and diabetes careunderstanding and self-management. Diabetes Care. 2005;28:816-22.
24 Morowati Sharifabad MA, Rouhani Tonekaboni N. The relationship between perceived benefits/barriers of self-care behaviors and self management in diabetic patient. J Hayat. 2007;1:17-28.[In Persian]
25 Vijan S, Stuart NS, Fitzgerald JT, et al. Barriers to following dietary recommendations in type 2 diabetes. Diabet Med. 2005;22:32-8.
26 Helgeson VS, Siminerio L, Escobar O, et al. Predictors of Metabolic Control among Adolescents with Diabetes: A 4-Year Longitudinal Study. J Pediatric Psychology. 2009;34:254-70.
27 Sharfi Rad Gh, Azad Bakht L, Feizi A, et al. The role of social support in self-care behavior of diabetes patients: a narrative review. J Health System Research. 2012;6:636-47.[In Persian]
28 Gillibrand R, Stevenson J. The extended health belief model applied to the experience of diabetes in young people. Br J Health Psychol. 2006;11:155-69.
29 Pereira MG, Cross LB, Almeida P, et al. Impact of family environment and support on adherence, metabolic control, and quality of life in adolescents with diabetes. Int J Behav Med. 2008;15:187-93.