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Reviewing the Relation between Social Support and Blood Sugar Control in Elders with Diabetes Type 2

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ABSTRACT

Since a major part of curing the elders' diabetes occurs at home, family and relatives play an important role in keeping these patients. This study aims to review the relation between social support and blood sugar control in the elders of Urmia. This research is a cross-sectional (descriptive-analytical) study, in which 200 elders, diagnosed with diabetes Type 2 from rural health centers have been selected in random with cluster sampling method. Social support has been used by means of Philips Social Support Questionnaire and to measure the blood sugar, glycosylated hemoglobin of diabetes patients has been employed. The data has been analyzed by means of descriptive statistics and independent T tests, Pearson and ANOVA correlation coefficient in SPSS 16. Results show that the score of social support of elders with diabetes is 15.40 ± 6.94 . Social support has a meaningful relation with variants of gender, age, education, marital status, diabetes disease, and economic status. Moreover, the results show there is a meaningful correlation between social support as well as its sub-domains and blood sugar control ($p = 0.001$, $r = -0.45$). Due to the influence of social support and its relevant factors on blood sugar control, it is recommended to take care of the elders with diabetes throughout the society more, based on the evidence from this study.

Keywords: social support, blood sugar control, elders, diabetes type 2

INTRODUCTION

In modern societies, especially in developing countries, the advance of medical sciences in several cases such as vaccination, control of infectious disease, environment sanitation, lowering infant mortality [1], lowering fertility rate, healthcare, and economic, social, and welfare conditions [2] has increased the lifespan, hence raising the elderly population [3]. In fact, to be an elder indicates the position of the modern society today, showing the significant advances in global healthcare, achieved by increasing the challenges in 21st centuries among developing and developed countries [4].

As the number of elders grows, the outbreak of non-contagious diseases as well as their dangers has increased [6]. It is an important issue in terms of public health to prevent and try to postpone chronic diseases among the elders [7]. Currently, the outbreak of diabetes has become one of the most important reasons of fertility and disability and one of the increasing concerns of public healthcare in the world [8]. Considering the current process, by 2025 about 75% of world's diabetes cases will be diagnosed in developing countries [9]. Apart from high appearance of sweet diabetes all over the globe (and the increase of its outbreak from 4% in 1995 to 4.5% in 2025), its serious side effects such as retinopathy, nephropathy, neuropathy, diabetic foot, mutilation of non-traumatic organ, atherosclerosis, and kidney disorders are among the reasons, governments pay attention to this disease [10]. In Iran, diabetes occurred in about 7.7%, i.e. 2 million patients, in 2005 and it is predicted that if the current process continues, this rate will reach about 5.2 million people in 2025 [11]. Since, at present, curing diabetic people is almost impossible, the aim of taking care of the disease is to control it.

Based on studies, the context of the concept of social support and its appearance as the main variant in various researches on healthcare, shows a serious step in reviewing the role of social factors on this issue. Social support is a concept with a very vast expanse, which can have many uses in different somatic, psychological, and social dimensions of human, and may increase his somatic, psychological, and social welfare [12].

When attempting to better understand the role of social support as well as its impact on healthcare and welfare, two models of social support have been reviewed. Social support is influential on controlling diabetes through two major processes: 1) the direct impact of social support via behaviors, relevant to healthcare such as encouraging healthy behaviors, and 2) the shield-like impact of social support, which helps balancing the impacts of intense and chronic stress on the health as well as increasing the compatibility with stress of diabetes [13]. The direct impact model assumes that social support increases the health and psychological compatibility of the individual, independent from the stress level, itself, whereas the shield-like one deduces that at the presence of negative events, social support protects people from pathogenic influences of stress [14]. The research by Wung *et al* [2], carried out on elderly women, shows that emotional support, one kind of social support, has the most influence on bodily and mental health [15].

Chan & Molassiotis conducted numerous studies on diabetes and the social issues of the patients, some of which focused on the role of social support to control the disease [16]. Also Whittemore *et al* found out that the most important predicting factor of metabolic control and diet in women with diabetes type 2 is support and self confidence [17]. In a study on elders with diabetes, Heidary *et al.* showed that there is a meaningful relation between family's support and controlling blood sugar, thus the patients with more support from their families were able to control their blood sugar conveniently [18].

With regards to the results, it seems that reviewing the impact of social support on other dimensions of human health, particularly among social groups with specific states and needs such as the elderly, can be chosen as one of the important research priorities in behavioral and social sciences. In spite of the influence of social support on self-protective activities, as an influential activity on controlling and curing diabetes, there have been few studies dealing with the role of social support on controlling blood sugar in elders with diabetes type 2. Thus the present research has been conducted to review the relation between social support and controlling the blood sugar in elders with diabetes type 2.

MATERIALS AND METHODS

In this descriptive-analytical study, 200 elders with diabetes have been selected by means of cluster random sampling method. The research's population includes the elders with diabetes, aged more than 60 years, who have visited rural healthcare centers of Orumiyeh in 2016. The sampling has been done as follows: Initially 10 centers were drawn from the 35 rural healthcare centers in simple random and the elders with diabetes, who visit these centers, participated in the study in case of their consent. If in the file of these visiting elders, there was some background of psychological diseases such as depression, sicknesses that affect their routine activities such as disability, or did not have glycosylated hemoglobin in the past month, they were omitted from the study.

For this article two questionnaires of individual features (age, education, career, etc.) have been employed for social support. Social support questionnaire has been designed by Philips *et al* in 1974 and includes 23 questions, covering three areas of family, friends, and the rest. With a response appendix, it has been ranked based on right and wrong spectrum for which the scores of zero and one have been allocated to each answer respectively. Moreover, the score

ranges between the minimum of 0 and maximum of 23, wherein higher score indicates greater and lower score stands for less social support. In Iran, the questionnaire has been used in the study by Nazari *et al.* too. Here the obtained Cronbach's Alpha Coefficient is 0.67 and the research's reliability and validity have been confirmed [19].

The data have been analyzed by SPSS 16 by means of descriptive statistics methods, Pearson correlation coefficient, independent T, and ANOVA. A meaningful level of 0.05 has been taken into consideration.

RESULTS

The average age of the participants was 70.51 ± 8.7 with 125 (62.5%) female and 75 (37.5%) male. In terms of education most of the elders with diabetes were illiterate (71.5%) and housewife (56%). In terms of marital status 146 (73%) were married; 50 (25%), widow; and 4 (2%), single. With regards to the remedy type most of the participants (77.5%) took pills and with regards to smoking, 178 elders (89%) did not smoke. As for the economic status, 132 individuals (66%) were in average.

Results of the present study show that the average score of social support for elders with diabetes was 15.40 ± 6.94 from the sum of 23. Also results of social support dimensions show that the average score of family's support, friends' support, and others' support was 5.39 ± 2.84 , 5.02 ± 2.57 , and 4.99 ± 2.69 respectively and the average of glycosylated hemoglobin (HbA1C) of the elders with diabetes was 7.87 ± 1.9 .

The relation of demographic variants with social support was analyzed by means of independent T Test. Results show that social support had a meaningful relation with the variants of gender, age, education, marital status, diabetes type, and economic status ($p < 0.05$), yet the relation of social support with career, blood fat, and body mass index was not meaningful (Table 1).

Table 1. Review of the relation between social support and blood sugar control in elders with diabetes type 2

Demographic features		Social Support		
		Average	Standard deviation	P-Value
Gender	Female	15.65	5.5	P=0.014
	Male	14.69	7.7	
Marital Status	Single	14.46	5.9	P=0.02
	Married	15.76	7.9	
	Widow	14.22	5.5	
Age	60 to 70	15.54	6.8	P=0.03
	70 to 80	15.34	6.3	
	80 and beyond	14.88	4.9	
Education	Illiterate	15.86	5.9	P=0.001
	Elementary	14.26	7.9	
	Diploma and higher	14.12	5.5	
Career	Farmer/Husbandman	14.83	5.4	P=0.23
	Housewife	16.03	5.5	
	Free	15.33	9.05	
	Other	13.17	6.4	
Blood fat	Positive	15.33	7.1	P=0.4
	Negative	15.11	6.2	
Diabetes	Positive	13.12	5.9	P=0.03
	Negative	15.73	6.2	
Economic Status	Good	15.88	6.06	P=0.003
	Average	15.85	6.1	
	Weak	13	7.7	
Body Mass Index	18.5 to 24.9 – natural weight	16.31	6.2	P=0.23
	25 to 29.9 – extra weight	14.14	7.4	
	Beyond 30 – 1 st degree obesity	16.09	5.3	

In the present research, social support with its subdivisions showed a reverse and meaningful correlation and blood sugar control, which means that the more the social support increases, the lesser the blood sugar control becomes in elders with diabetes (Table 2).

Table 2. Correlation between social support and blood sugar control in elders with diabetes

Dimensions of social support	Blood sugar	
	correlation coefficient	p-value
Family's support	r=-0/45	p=0/001
Friends' support	r=-0/42	p=0/001
Others' support	r=-0/28	p=0/001
Social support (total)	r=-0/45	p=0/001

DISCUSSION AND CONCLUSION

Results from this research showed that the average score of social support in female and male diabetes patients was 15.65 and 14.96 respectively, which have a meaningful statistical difference with each other. Similarly, in the study by Mathew *et al.* social support in men was less than the women [20]. It seems that because of the emotional morale of the women, social support can increase their self confidence as well as positive sensation and directly reinforce their safety system, thus speeding up the disease recovery and decreasing vulnerability to it. Furthermore, supportive relations with others by improving, promoting, and increasing safe behaviors may result in the maintenance of the individual's health.

Based on the research's findings, married elders who had diabetes were more under social support while the widows received the least social support. Trif *et al.* in their own researches showed that successful marriage may improve compatibility with the disease conditions. The support from the patient's spouse is the most important support source of the individuals during the disease phases [21].

The findings of this research showed that there is a meaningful relation between economic status and blood sugar control. As such, people with good economic status, had controlled their blood sugar better, while those --reporting their economic status as weak-- were not able to control their blood sugar conveniently. The findings from the research by Dai confirmed this as well [22]. Good economic status means selecting power and purchasing appropriate nutrition with regards to diabetes, various kinds of sport equipments, suitable books and magazines for diabetes, etc., which has a direct impact on self-protection of these people.

Results showed that the highest sugar blood control belonged to illiterate elders while the least was in those with diploma and higher degrees. In contrast, in the study by Schwartz, elders who had academic degrees had been able to control their blood sugar better [23]. The reason behind the difference in these two studies might be the low number of samples among participants with higher educational degrees.

Other results of the study demonstrated that the side effects of diabetes in people who enjoyed higher social support were less. Social support generates mutual responsibilities, creating a sensation where the individual feels he is loved, well-protected, self-confident, and valuable, all of which related to positive consequences of well-being. Social support is related with the decrease of depression, anxiety, and other psychological problems. It is an influential index of compatibility with the process of getting old along with the problems of the ageing period [24]. Age has been known to be one of the most influential factors on controlling blood sugar. This study proved that as the age increases, blood sugar control descends. A study in 2010 by Aggarwal *et al.* illustrated that in people beyond 65 years of age, the rate of following a medical diet had been more insignificant [25].

Results also showed that elders with diabetes, who enjoyed a natural bodily mass index, scored better in social support. The study by Cossege & Marzilli also demonstrated that family support has a great influence on following a nutritional and sport diet in diabetes patients [26].

Concerning the relation of social support with blood sugar control, results indicated that as the rate of this support ascends, blood sugar control is performed better. Separating its components, the highest support came from the family and the lowest from the others. Also, results showed that there is a reverse and meaningful relation between social support along with its components and blood sugar control, i.e. diabetes patients, receiving more support from their family, relatives, friends, colleagues, and society, had been able to control their blood sugar conveniently.

The study of Fischer et al. showed that there is a reverse and meaningful correlation between family's support and HbA1c. In their study, family's support has improved blood sugar control among the patients and there was a meaningful relation between family's support and the number of family members [27].

Wen et al. in their study of family's support, diet, and sport among old Mexican Americans with diabetes type 2, also observed that as this support grows, following the diet and doing sports are done better [28]. Glasgow says that family's support is the strongest factor to determine diet therapy in patients with diabetes type 2 [29].

Family is the first and most important source of support. Hence family members sacrifice themselves in order to protect other members. Even if the supported person is injured and unable to make up for it, the family endeavors for permanent support. Usually, spouses are the first ones to act as supportive sources during a period of crisis [30]. Based on the results from this research, considering social support in healthcare protections may result in the improvement of the health status in patients with diabetes type 2. Thus it is necessary that the supervisors continuously focus on the influential factors of social support reception among elders with diabetes, survey supportive needs of this group of patients both quantitatively and qualitatively, and --by identifying dangerous groups--take some steps to raise social support reception and expand their supportive network. What is more, by gathering supportive sources that exist in the society as well as family cooperation, they should take the necessary steps to promote giving support to these patients. Finally with appropriate support, one can turn people with diabetes to an efficient and useful member of the society and prevent deterioration of their problems as well as their incompetency, which occurs in case of no suitable control.

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