Investigation of Self-care Behaviors and the Related Factors in Older People with Diabetes Type 2 Visiting Tehran Selected Hospitals in 2016

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Abstract

Background and objective: Diabetes can affect physical performance, development of disease complications, mental status, and the perception of health. Therefore, one of the main ways of controlling diabetes is to maintain and improve self-care behaviors in these patients. As such, the objective of the present study was to investigate self-care behaviors and the related factors in older people with diabetes.

Method: This is a descriptive correlational study done on 262 older people with diabetes who visited Tehran selected hospitals in 2016. Data collection was done using a demographic information questionnaire and Toobert's and Glasgow's self-care behaviors questionnaire. The descriptive and inferential statistics (Pearson correlation, one-way ANOVA, and independent t-test) in SPSS 20 software were used for data analysis.

Findings: The average age of the older people was 65.78 (±5.69). 152 people (58 percent) of the participants were female and the others were male. The average score of self-care in the study group was 44.74 (±11.90) which is at an average level. The minimum score average of self-care behaviors was related to diet consideration 22.82 (±7.59). There was a significant relationship between self-care behaviors and occupational status, type of treatment, and duration of diabetes.

Conclusion: The self-care behaviors of the research units were at an average level. Regarding the important role of self-care activities in controlling diabetes, some educational programs should be planned in order to empower the patients with regard to self-care. This will benefit the health level of the patients with diabetes and facilitate control of the disease.

Key words: older people, diabetes type 2, self-care behaviors

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Introduction

Aging is the gradual passing of time influencing the individual's feelings, performance, and physical and mental ability. Demographers mention that the beginning of aging and becoming elderly is between 60 and 65 years old (1). It is predicted that the world percentage of men and women older than 65-year-old would respectively rise to 9.4 percent and 9.1 percent by 2020. Nearly one million people cross the 60-year threshold each month. These people are from developed countries, such as the United States, where the number of older people has been increasing so rapidly that by the year 2013, 44.7 million people will be aged 65 and older, and by 2023, this number is expected to reach 61.4 million, representing approximately 18% of the total US population. (2). Moreover, The percentage of older persons is expected to more than double from 7.6% to 16.2% by 2050 (3).
Although aging is not disease, a great number of older people suffer from chronic diseases like diabetes. Studies have shown that the prevalence of diabetes type 2 in older people is increasing. Recent statistics show that for each five older persons, there is one with diabetes type 2. (4)

Furthermore, the prevalence of diabetes in the developing countries like Iran has increased by 17 percent and that there is now one person with diabetes per five Iranian people (5). In the future we will have older people (who statistically have a large chance to be or become diabetic). In 2010, the estimations showed that there were nearly 285 million adults with diabetes throughout the world. As such, diabetes in the older people would be the most important factor of disability in Iran and the world during the next 25 years (6).

Diabetes is considered to be the sixth factor of death in the world which decreases life expectancy to one-third (7,8,9). In some of the studies, the prevalence of diabetes and impaired glucose tolerance varied from 10 to 30 percent (10,11,12).

Diabetes is a chronic disease with profound consequences for the individual's whole life. The effects are so extensive that the World Health Organization (2010) has called it a silent epidemic affecting physical performance, mental status, individual, family, and social communication, sexual function, and perception of health. Furthermore, this disease is the main cause of the development of disease complications like amputation, blindness, chronic renal failure, and heart disease. In addition to the said impacts the social and marital relationship, family, and job status are severely negatively influenced and decrease different aspects of the quality of life of the people with diabetes as well as their families (9,13,14). Self-care behaviors are the most important factors in controlling diabetes (15). Monitoring self-care behaviors is of great importance for improving health and preventing chronic diseases among older people (16). According to the studies, the most important reason for death in the patients with diabetes is the lack of self-care (17). With regard to diabetes, self-care includes the following: an appropriate diet, timely use of medicine, self-monitoring of blood glucose (SMBG), doing regular physical exercises, and foot care (18,19). Proper self-care results in an improvement of the patient's general health, which will eventually reduce the treatment costs (20,21). Important factors that play a role in the self-care of patients is individual beliefs and attitudes, values, and the culture of the society the individual lives in (22).

One of the most important differences of diabetes with other chronic diseases is that the patient is supposed to do the main part of disease control by themself (23). Therefore, with regard to the increasing rate of diabetic, older people in Iran the significance of self-care behaviors and the related factors is of prime importance. In 2016, it was decided that this study should be conducted with the aim of investigating self-care behaviors and the related factors in older, diabetic people who visited Tehran selected hospitals.

Method

This is a descriptive correlational study conducted in four selected hospitals in Tehran in 2016. The study concerned older people with diabetes who were visiting Tehran selected hospitals. Availability sampling was used based on the inclusion features.

The inclusion features were: age of >60 years, Persian speaking, willingness to participate in the study, and having been diagnosed with diabetes by an endocrinologist for at least a six-month.

Data collection instruments included demographic information questionnaire and Toobert's and Glasgow's self-care behaviors questionnaire (2000).

The demographic information questionnaire included age, gender, marital status, job status, educational status, duration of the disease, and type of treatment.

Toobert's and Glasgow's self-care behaviors questionnaire is a self-report questionnaire letting the participants report the quality of their self-care activities during the past seven days. This questionnaire was first developed by Toobert and Glasgow in 2000; it includes 11 phrases and evaluates four areas of adherence to the diet, doing regular physical exercises, foot care, and self-monitoring of blood glucose (SMBG)(24). The validity and reliability of this instrument were investigated and confirmed by the previous studies and Cronbach's alpha was estimated as 0.68 (18). Cronbach's alpha was again calculated in the present study and its value was 0.68. Scoring the questions of this scale was in a way that the score of 1 was given to the person who did not do any self-care in the said areas on any days of the past seven days. The person who daily performed self-care in all areas of the seven days received the score of 8. Others received scores from 1 to 8 based on the number of the days they followed self-care behaviors.

To determine the desirable level of self-care, in addition to comparing the mean of the scores, the domain of the scores which was between 11 and 88, was divided into three parts so that patients with self-care scores between 11 and 36 were considered as weak, those with self-care scores between 37 and 62 were considered as average, and those with self-care scores between 63 and 88 were considered as desirable.

The study proceeded as soon as the research subject was approved by the ethics committee of Shahid Beheshti University of Medical Sciences (letter of recommendation and the letter of ethics committee). When coordinating with the authorities of Tehran selected hospitals (Shohada Tajrish, Taleqani, Imam Hossein, and Rasool Akram) was finished, the availability sampling method was applied. From then on, these hospitals were visited and the researcher was present in the diabetes clinics on every day of the week and at their service providing time. Samples were selected after matching the research samples with the inclusion criteria. Informed written consent of all patients was taken in order to conform to the ethical principles and data were collected and analyzed confidentially and anonymously. Then, data collection instruments (questionnaires) were given to the older people visiting the hospitals. The researcher was present in the research environment while the respondents were answering the questions and assisted them if necessary. If the patient could not write the answers to the questions for any reason, the researcher himself completed the questionnaire by asking the patient and writing the exact answer of the patient.

In this study, descriptive (frequency, mean, and standard deviation) and inferential statistics (Pearson correlation test, independent t-test, and one-way ANOVA) were used after investigating the normality of data and confirming the fact that the data followed the normal distribution. Data were analyzed using SPSS 20. The significance level in this study was considered as 0.05.

Findings

262 older people with diabetes who visited Tehran hospitals participated in this study; they were questioned concerning their self-care behaviors and the factors affecting this. The average age of the older people was 65.78 (±5.69). Most of the older people were in the age range of 60 to 64 (50.8%) years old. Among the older people, 152 people (58%) were female and 42% were male. The majority of the patients were married (76.7%) and with regard to their educational level, most of them had a high school degree. The duration of the disease in most of the patients (36.3 percent) was between 1 and 5 years. The job of the majority of the participants (48.5 percent) was housekeeping and 49.6 percent of them used a dietary treatment. The exact numbers are shown in Table 1.

The average score of self-care behaviors was 44.74 (±11.90). According to these results, the self-care of most of the older people with diabetes was estimated at the average level. In this study, self-care behaviors were weak in 15.6% (41 people) of the participants, average in 60.7% (159 people) of the participants, and desirable in 23.3% (62 people). The results of the self-care status and its different areas are shown in Table 2.

According to the results of Table 2, the minimum score of self-care, regarding the range of scores, belongs to physical exercise and activity and the maximum score obtained was in the area of adherence to the diet. Considering all areas, the average score of self-care of the patients was 44.74±11.9; according to the determined desirability level and the domain of scores, indicates a semi-desirable status of self-care in these patients.

The results of Table 3 indicate that there is not a statistically significant difference between men and women in terms of self-care scores. Moreover, there was no difference in the average score of different age groups. In the investigation of the relationship of the other variables with self-care status of the patients based on the results of one-way ANOVA test, it was observed that the educational level and marital status of the patients did not have a significant relation with the quality of self-care behaviors. However, there was a statistically significant relationship between occupational status and the quality of self-care behaviors. The average score of the retired patients was statistically more significant than the others. Furthermore, there was a statistically significant relationship between the type of diabetes type 2 treatment and the quality of self-care behaviors meaning that the average score of the patients simultaneously using glucose and insulin-lowering medication was statistically higher than the other patients.

The self-care status of the patients was different in terms of the duration of diabetes. The average score in the patients who experienced 26 years and more of diabetes was 62.1 ±11.88; according to Pearson correlation test, the correlation value of 0.14 was higher than the other groups.

Table 1¬: Demographic Information of the Older People with Diabetes Type 2 Visiting Tehran Selected Hospitals in 2016

Variable		No.	Percentage
Age (year)	60-64	133	50.8
	65-69	74	28.2
	70-74	36	13.7
	75-79	9	3.4
	80 and above	10	3.8
Gender	female	152	58
	male	110	42
Duration of the disease (year)	1-5	95	36.3
	6-10	67	25.6
	11-15	43	16.4
	16-20	28	10.7
	21-25	19	7.3
	26 and above	10	3.8
Marital status	Single	3	1.1
	Married	201	76.7
	Divorced	3	1.1
	Widow	55	21
Educational level	Illiterate	60	22.9
	Elementary school	60	22.9
	Junior school	31	11.8
	High school	71	27.1
	University	40	15.3
Occupational status	Employed	39	14.9
	Housekeeper	127	48.5
	Unemployed	13	5
	Retired	83	31.7
Type of treatment	A diet	130	49.6
	Diet and insulin	52	19.8
	Insulin	70	26.7
	Diet and physical activity	10	3.8

Table 2: Mean and Standard Deviation of Self-care Behaviors and Their Different Aspects in the Older People with Diabetes type 2 Visiting Tehran Selected Hospitals in 2016

Self-care behavior aspects	Mean ±SD
Diet	22.82±7.59
Physical exercise and activity	5.43±3.6
Blood glucose test	7.07±5.23
Foot care	9.4±3.26
Total	44.74±11.9

Table 3¬: The Relationship between Demographic Information and Self-care Behaviors of the Older People with Diabetes type 2 Visiting Tehran Selected Hospitals in 2016

Variable		Mean and SD of self-care behaviors	P value
Age (year)	60-64	51.87±14.48	0.934
	65-69	52.72±14.59	
	70-74	52.22±14.04	
	75-79	58.55±11.88	
	80 and above	48±22.89	
Gender	female	53±14.13	0.328
	male	51.2±15.49	
Duration of the disease (year)	1-5	51.86±15.59	0.017
	6-10	48.68±13.72	
	11-15	53.44±14.77	
	16-20	53.85±14.58	
	21-25	56.47±12.39	
	26 and above	62.1±11.88	
Marital status	Single	55.66±18.14	0.371
	Married	52.41±15.15	
	Divorced	65.33±7.37	
	Widow	50.72±13.03	
Educational level	Illiterate	50.76±17.72	0.754
	Elementary school	51.03±13.71	
	Junior school	53.19±15.78	
	High school	53.22±12.83	
	University	53.82±13.89	
Occupational status	Employed	45.2±13.99	0.003
	Housekeeper	52.03±14.37	
	Unemployed	50±15.79	
	Retired	56.22±14.3	
Type of treatment	Diet	50±14.55	0.003
	Diet and insulin	58.88±13.53	
	Insulin	51.78±14.04	
	Diet and physical activity	50.1±19.06	

Discussion and Conclusion

The objective of this study was to investigate the condition of self-care behaviors and the factors affecting this in older people with diabetes who visited Tehran selected hospitals. The research findings indicated that the status of the patients' self-care behaviors, generally and in most of its aspects, especially in the area of physical exercise and activity and self-monitoring of blood glucose are not desirable; this finding is in line with the findings of other studies conducted in this regard. Bashar and Rajha 2016 who conducted a study on self-care behaviors in patients with diabetes in Kufa indicated that the status of the patients' self-care is at an average level in terms of desirability (25). In this study, the minimum self-care activity concerned the area of regularly doing physical activities and daily control of blood glucose. This consistency means that the older people with diabetes do not pay enough attention to the daily monitoring of blood glucose and do not exercise or do daily activities sufficiently to control their blood glucose level.

In this study, the score of self-care was higher for women than men, but there was not a significant difference in the average scores of self-care in terms of gender. Although it is expected that men have a weaker self-care status due to business, undesirable adherence to treatment, and usually displaying reckless behaviors such as smoking, this difference was not apparent in the present study. The results of the present study were in line with those of Bigdeli et al. 2015 in terms of gender (26).

Though it is expected that people with higher educational levels have a better insight in to the importance of self-care than others, this difference was not apparent in this study and there was no significant relationship between educational level and self-care behaviors. However, Karter et al. 2000 conducted a study and showed that educational

level is an effective factor in the self-care status of the patients (27). This study concluded that people with an academic educational level are more disciplined in the area of self-care compared to other patients. The reasons for this inconsistency can be due to the difference in the distribution of the educational levels of the population of the present study with the aforementioned study. Furthermore, there was no significant relationship between marital status and self-care behaviors; the reason of which may be the greater number of married patients compared to the other patients. These findings are consistent with those of Wang et al. 2014 (2).

According to the results of the present study, the self-care status showed a statistically significant difference in terms of duration of the disease. This result may indicate that the longer the duration of the disease, the more skillful the patients become with regard to self-care. These results can be observed in the studies done by Fatehi Albikawi and Abuadas 2015, Manjula and Premkumar 2015, and Baghaei et al. 2008 (13,28,29).

Another important factor affecting self-care in this study was the type of treatment. The average score of the patients simultaneously receiving glucose and insulin-lowering diet was significantly higher than the other patients. This high score may be due to the fact that this group of patients have a more regular treatment plan since they fear the mortal complications of the disease and have a higher acceptance of the treatment; this issue makes the patients more disciplined in the self-monitoring of their glucose levels.

As the results indicated, the self-care status of the retired patients was better than the other patients and there was a significant relationship between patients' occupational status and self-care behaviors. However, this relationship was insignificant in the study done by Bashar and Rajha 2016. The reason for this inconsistency may be because of the different occupational status of the two societies. In the present study, the employed individuals were investigated in one group, but in the study of Bashar and Rajha 2016, the employed individuals were investigated in two groups of clerks and self-employed (25). The results of the present study indicate that there was a significant relationship between some of the demographic information and self-care behaviors; the lack of continued adherence to self-care behaviors increases the danger of the short-term and long-term complications of the disease. Therefore, a comprehensive practical training on the quality of engaging in self-care behaviors is of the most important elements of optimally controlling the disease for all the patients. Sufficient awareness of the disease and its complications as well as empowering the patients and their families for controlling the disease lead to success in engaging in these behaviors. Therefore, it is necessary that the health care providers offer some information and instruction on the disease for self-care for different age groups, the two genders, different jobs, and the patients' families.

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