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Health locus of control and self-care behaviors in diabetic foot patients

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Abstract

Background: Diabetic foot affects more than 25% of diabetic patients and finally up to 20% of cases result in amputation. The most important factor resulting in severe complications or even death is lack of self-care. Health locus of control has been introduced as one of health factors and predicting factors of self-care. This research was performed for analyzing the correlation between self-care behaviors and health locus of control in diabetic foot patients.

Methods: In this descriptive study, 120 patients with diabetic foot were chosen using convenience sampling from endocrine clinic and wards of endocrine and vascular surgery of Teleqani Hospital of Shahid Beheshti Medical University. The data were gathered by demographic, self-care behavior, and health locus of control questionnaires. The t-test, analysis of variance (ANOVA) and spearman coefficient were used to analyze the data.

Results: Results of this research showed that there is a direct and significant relation between self-care behaviors and internal health locus of control ($p<0.001$), and also in contrast with chance health locus of control ($p<0.001$).

Conclusion: We have to consider these factors' role in nursing interventions and patient-care education programs and plans. Probably, interventions and programs that will lead to the strengthening of internal health locus of control improve and strengthen patients' self-care behaviors and their involvement in treatment.

Keywords: Diabetic foot, Self-care behaviors, Health locus of control.

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Introduction

Diabetes mellitus is a major cause of mortality and disability by macro vascular and micro vascular complication. Diabetic foot ulcer as one of the most common complications of diabetes (1), affects more than 25% of people with diabetes in their lifetime (2), and if not treated properly, can lead to complications such as infection and gangrene and finally, to 20% leads to amputation (3). The mortality rate in patients with diabetic foot ulcer is 2 to 4 times higher than others with no foot ulcer (4). Every year about one million amputations occur due to diabetes and this means that every 30 seconds a diabetic patient undergo an amputation worldwide (5). Meanwhile, after the first amputation, triennial mortality

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rate is about 50%(6). Diabetes is a chronic disease that requires lifelong special self-care behaviors (7). According to the studies, the most important underlying causes of mortality and morbidity and chronic complications in diabetes patients is lack of self-care and demonstrate the fact that patients with lower self-care, undergo further complications such as foot ulcer (8). An effective management of diabetes requires self-care behaviors such as dietary control, regular exercise, glycemic control and foot care and therapeutic outcomes are dependent on self-care behaviors (9).

For years, people differences in their perceptions of the amount of control which they have over their lives, has attracted the attention of psychologists. Locus of control as a psychological construct is based on Rotters social learning theory formed in 1954 (10), and then introduced by Wallston et al as the health locus of control theory in the1970s (11)

Rotter defines the concept of locus of control as a people's belief about location of forces which control their lives. Another definition is "the individual belief that his/her health is controlled by his/her behavior or external forces" (10,11). Those who have external health locus of control know factors outside their existence as responsible for their own health condition such as doctors, luck and fate and, conversely, those with internal control; know themselves responsible for their health. The latter ones believe their actions and behaviors are directly determining their health. Therefore, health locus of control falls into two categories: internal health locus of control and external health locus of control. External locus of control is also divided into two groups of powerful others and chance (12-14). Many studies have reported the relationship between health locus of control and healthcare behaviors (12,15,16). This study was conducted to investigate the relationship between health locus of control and self-care behaviors in patients with diabetic foot ulcers.

Methods

Male and female patients with type 1 and 2 diabetes and diabetic foot who were referred to endocrine clinic and hospitalized in endocrine and vascular surgery wards of the Taleqani Hospital of Shahid Beheshti Medical University in 2012 were selected based on convenience sampling, and after taking consent, participated in this study. Illiterate patients who were not able to fill out a questionnaire and also patients with other underlying diseases and mental disorders were excluded. Finally, 120 patients participated in this study.

Data were collected by three instruments: demographic characteristics questionnaire, Multidimensional Health Locus of Control scale and foot self-care questionnaire. Demographic questionnaire consisted of 11 questions about age, sex, type of diabetes, duration of diabetes, level of education, marital status, occupation, and income level. Health locus of control questionnaire was designed in 1970 by Wallston and Wallston (10). This scale consists of 18 statements that each subscale allocates 6 items to itself. Answer of each statement is a 6-point Likert scale from strongly agree to strongly disagree (17,18). The validity reported for the three subscales of internal, powerful others, and luck is 0.59, 0.55, and 0.67, respectively. Also, related kuder-Richardson coefficient is reported as 0.50, 0.62, and 0.77, respectively. In Iran, this scale was translated and validated by Morowatisharifabad and colleagues in 2009 for diabetic patient and in 2007 by Moshki and colleagues with acceptable validity (13,17). In this study, to determine the reliability of this tool, internal consistency (Cronbach's alpha) was used, and for the internal health locus of control, powerful others and chance 0.75, 0.79, and 0.72 were obtained, respectively. To assess self-care behaviors, we used self-care behavior questionnaire, which is designed in 2012 by Eshgh based on the Orem's self-care model with reported correlation coefficients of 0.92 and correlation of 0.97 in the test-re-test (19). The questionnaire contains 43 questions in five

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Table 1. Frequency distribution of the samples in terms of demographic variables

Variable	Category	Relative %	Absolute %
Sex	Male	43.3	52
	Female	54.2	65
Type of diabetes	Type I	10.8	13
	Type II	88.3	106
Therapeutic regimen	Oral pill	35	42
	Insulin	25	30
	Both	40	48

Table 2. The frequency distribution of the samples in terms of Health locus of control subtitles

Variable	Absolute %	Relative %
Internal HLC	24	20
Powerful others HLC	44	36.7
Chance HLC	41	34.1
Others	11	9.2
Total	120	100

subscales include acceptance of his concept, learn to live with the disease, information regarding the effects and outcomes of disease, effective treatment and preventive actions to compensation disability and regulated the individual performance, initial adaptation with the disease, seeking medical help, and collaboration with treatment groups. The answers are: yes, sometime, and no and self-care point for every individual is the total scores for each question. Ten education experts of Shahid Beheshti Nursing Faculty confirmed content validity of the instruments. Necessary authorization was obtained from the Research Council of Shahid Beheshti University of Medical Sciences. The statistical analysis was performed using SPSS version 16 software, and Spearman coefficient, t-test and ANOVA were used to analyze the collected data.

Results

In this study, 54% (N=65) of the samples were female and the rest male, with the mean±SD age of 56.9±12.16 years in all patients. The mean±SD of diabetes duration in type II was 17.21±8.26 years and type I, 20 years. Most samples had a primary education and only 12% (N=14) had academic education. Approximately 88% (N=106) of the subjects had type II diabetes and the rest, type I (Table 1). Also, the majority of cases (36%) were believed to powerful others health locus of control, and 20% (N=24) and 34% (N=41) believed to internal and chance health locus of control, respectively (Table 2).

Table 3 shows correlations between self-care behaviors and health locus of control and its components. In this table, we see an inverse relationships between self-care behaviors with powerful others and chance

Table 3. Correlation between self-care score and health locus of control subtitles

Variable	p	Correlation Coefficient
Internal HLC - self care	<0.001	0.405
Powerful others HLC - self care	0.062	-0.171
Chance HLC - self care	<0.001	-0.545

Table 4. Correlation between components of health locus and control with demographic variables with one way ANOVA analysis

Parameter	Powerful others HLC	Chance HLC	Internal HLC
Sex	0.002	0.266	0.127
level of education	0.294	0.004	<0.001
Monthly income	0.100	0.004	0.017
Type of diabetes	0.004	0.448	0.090

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health locus of control (p<0.001) and a direct relevance with internal health locus of control (p<0.001). But this relationship was not significant with powerful others, and chance health locus of control. Regarding age, the results showed that more men are following an internal health locus of control and more women powerful others. Table 4 shows a direct and significant relationship between internal health locus of control with level of education (p<0.001) and monthly income (p=0.017), whereas there was seen an invert and significant relationship between chance health locus of control with level of education (p=0.004) and monthly income (p=0.004). Also, there was a relation between powerful others health locus of control with sex (p=0.002) and type of diabetes (p=0.004), such that, women and type II diabetes, most believed to powerful others health locus of control.

Discussion

Most samples had type II diabetes, which is due to a higher prevalence of type II diabetes and diabetic neuropathy in type II rather than type I. In this study, 20% of samples have internal health locus of control. This means that 20% of them know their health as a result of their behaviors and believe that they have control over their own health. About 36% of samples were believed to powerful others health locus of control, that means that they seek their own health in the hands of health professionals, physicians and families and know themselves less responsible for their own health and disease. However, the study of Morowatisharifabad et al (2009) on patients with diabetes reported that most people believed to internal health locus of control, and so know them as the greatest factor affecting on adherence to their therapeutic diet (13). Also, 34% believed to chance health locus of control, this means that they know their health as a result of good luck and their disease as a result of bad luck and fate. In total, about 70% of patients were believed to external health locus of control (chance and powerful others health locus of control). But, majority of men were believed to internal health locus of control and majority of women to powerful others health locus of control. An inverse and significant relationship was seen between self-care behaviors with chance health locus of control (p<0.001) and a direct relationship with internal health locus of control (p<0.001). This means that people who believe to have role in their health, had a higher score in self- care, though, people who believe chance role in their health, had a lower score in self-care; these results were in line with the findings of other studies (11,13,14,20,21). Nevertheless, Zahednezhad and colleagues (2011) found a direct correlation between powerful others health locus of control and therapeutic regimen adherence. In Macrodimitris study (2001), an inverse relationship was found between internal health locus of control and glycosated hemoglobin, that is in line with results of this study. Also, in this study a direct and significant relationship was seen between internal health locus of control with level of education (p<0.001) and monthly income (p=0.017), whereas, an inverse significant correlation was found between chance health locus of control and level of education (P=0.004), and monthly income (p=0.004). This means that, people with higher level of education and monthly income believed more to internal health locus of control, unlike people with lower level of education and monthly income that believed more in chance health locus of control. Patients with type I diabetes compared with patients with type II believed more in chance health locus of control, perhaps it can be attributed to the genetic nature of the type I diabetes.

Conclusion

As was found in this study, health locus of control is related with self-care behavior in patients with diabetic foot. We have to consider these factors' role in nursing interventions and patient-care education programs and plans. Probably, interventions and programs that will lead to the strength-

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ening of internal health locus of control improve and strengthen patients' self-care behaviors and their involvement in treatment. Therefore, improving the patients' quality of life, reducing associated disability and economic burden imposed on families and communities will be within the reach of health sector.

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