

Original Article

The relationship between depression and self-care in patients with type II diabetes

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ABSTRACT

Background & Aim: Depression is a common situation in patients with diabetes that may reduce the ability of individuals to engage in self-care behaviors. The present study was performed to investigate the relationship between depression and self-care in patients with type II diabetes .

Methods & Materials: This descriptive, cross-sectional study was performed with convenience sampling on 200 patients with type II diabetes who were referred to Saqqez Imam Khomeini Hospital, Sanandaj, Iran, in 2012. The data collection instrument consisted of three demographic information, depression, and self-care questionnaires. Data were analyzed by SPSS for Windows (version 16; SPSS Inc., Chicago, IL, USA) using chi-square and descriptive statistics. P values less than 0.05 were considered statistically significant.

Results: Diet in 5-7 days a week ($P = 0.002$) and adherence in 5-7 days a week ($P = 0.03$) were significantly lower in patients with diabetes and depression than in diabetic patients without depression. In the areas of exercise, foot examination, and self-monitoring of blood glucose there was no significant difference between the two groups .

Conclusion: Given the high prevalence of depression in diabetic patients, using screening methods such as HANDS scale seems to be necessary for disorder identification and promoting self-care activities.

Introduction

Diabetes is currently considered as one of the world's biggest health problems and labeled as the silent epidemic of the century (1). It is the fifth leading cause of mortality and the fourth leading reason of doctor visits, comprising up to 15% of health care costs in the US (2). Currently, over 150 million people worldwide suffer from diabetes and the figure is expected to double by 2025. Worse still, over the next 25 years, diabetes is anticipated to become the

world's leading cause of incapacity and death (3, 4). The prevalence of diabetes rises by 6% globally every year (5). The prevalence of diabetes in Iran is estimated at 6 to 7%, and there are as many patients with diagnosed diabetes as those oblivious to their disease. The interest in diabetes is due to its high prevalence, complications, and the burden of costs on the healthcare system (6). Diabetes is currently not curable, but can be managed (7). One of the most important factors in managing diabetes is self-care behavior, the lack of which is known as the most important factor in rehospitalization and mortality in patients with chronic diseases like diabetes (6-10). Self-care involves activities that the patient performs to promote health, prevent and/or

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limit the disease, and maintain his/her own health (11).

Self-care behaviors in diabetic patients include adherence to the recommended diet, regular exercise, testing blood glucose, and care for the feet (12). Self-care compels people to look after themselves and accept responsibility for their own health (7, 13). Since medication is not very effective in treatment of type II diabetes and over 95% of the treatment process is performed by the patient, it is expected that the patient handles most of the management of diabetes personally (4, 12). Hemmati et al. state that diabetic patients should themselves be responsible for managing their disease, and do so according to their cultural backgrounds and in the most appropriate manner (7). Depression is a common problem among people with chronic diseases that can affect self-care (14, 15). The very first sign of depression is a loss of motivation and interest, and followed by reduced activity and efficacy, hopefulness, and self-care, leading the patient to wish for death (16).

Depression and diabetes follow a vicious circle, one inducing the risk of the other, and vice versa (17). The prevalence of depression in diabetic patients (15 to 20%) is twice that in the healthy population (8, 18). The reason for the prevalence of depression in diabetics is not entirely clear, but factors such as neuropathic pains, neuroendocrine mechanisms, disorders of the pituitary-hypothalamus axis, and ischemia due to vascular disorders affect its prevalence (19).

Some studies show that depression can have an adverse effect on diabetes outcome through reduced self-care, and increased burden of disease (20, 21). The treatment expenses of diabetics with depression are 4-5 times that of other diabetics. Moreover, mortality and morbidity rates in depressed diabetics are 7-15 times and 2-3 times that in non-depressed diabetics, respectively (22). It seems early detection of depression symptoms could increase adherence to treatment, leading to elevated self-care and reduced diabetes complications. In addition, although other studies have been carried out on the subject, because of cultural differences, it appears imperative that a study be conducted on type II diabetic patients residing in the city of Saqqez,

Sanandaj, Iran. The present study was conducted to examine the relationship between depression and self-care in patients with type II diabetes.

Methods

This was a cross-sectional, descriptive-analytical study conducted in fall 2012 on type II diabetic patients attending the diabetes unit at Imam Khomeini Hospital in Saqqez, Iran. In addition, 200 type II diabetic patients (age ranging from 32 to 80 years) with at least one year of diabetes participated in the study. The sample size, with 95% confidence level ($\alpha = 0.05$) and $d = 0.07$ was estimated at 200 patients. To achieve this sample size, researchers visited the diabetes unit at the hospital on a daily basis for 3 months. The hospital's diabetes unit is managed by 3 endocrinologists and a team of nurses. Patients with a confirmed diagnosis of diabetes are referred to and register at this center. Participants in the study were undergoing treatment with insulin and hypoglycemic medication. Convenience sampling was used. Study inclusion criteria included diagnosis of type II diabetes by a physician, history of medical treatment (tablets or insulin), desire to participate, and being registered at the diabetes center. Data collection was performed using a demographic questionnaire, the Harvard Department of Psychiatry/National Depression Screening Day Scale (HANDS) Questionnaire, and the Summary Diabetes Self-Care Activities (SDSCA) Questionnaire. The 10-item Harvard Department Depression Questionnaire is a standard tool that has been used in many studies for assessment of depression in diabetic patients (21). There are 4 options for each question with 0 to 3 scores, and total score of 0 to 30 for the questionnaire. Scores 9 and above indicate depression, and the higher the score, the more depressed the patient is (23). Gonzalez et al. state that, in terms of sensitivity, HANDS questionnaire equals the 21-item Beck's Depression Inventory, the 20-item Zung Self-Rating Depression Scale, and the 15-question Hopkins Symptom Depression Checklist (24). The 10-item questionnaire examines self-care items such as diet, physical activity,

self-monitoring of blood glucose, care for the feet, and adherence to treatment in diabetic patients over the past week, allowing them to report their own self-care activities in the past 7 days. The diet domain included 4 questions and the rest had 2 questions each. Each domain scored 0 to 7 on a Likert scale. A score of 7 is allocated to patients performing self-care activities on every day of the week, and if the required behavior is not performed, a score of 0 is considered. The highest possible score is 35 and attaining 20 marks and above indicates favorable self-care status. According to the study by Toobert et al., the self-care questionnaire reliability with a re-test method was 0.64 (25). Both questionnaires were translated into Persian by one of the researchers, and translated back into English by another researcher. Content validity was used to assess validity of both questionnaires. Reliability of the self-care questionnaire in terms of stability and internal consistency was examined. To assess stability (repeatability) of the questionnaire, test re-test method was performed with 1 week interval ($r = 0.71$), and the internal consistency of self-care and depression questionnaires were found by calculating Cronbach's alpha of 0.74 and 0.78, respectively. Once the subjects were selected, questionnaires were completed by a trained nurse interviewing the subjects. To protect confidentiality, patients' names and last names were not written on the questionnaires. Analysis of data was performed by SPSS software using chi-square and Student's independent t-tests with the significance level of $P < 0.05$.

Results

In investigating personal details of the 200 study subjects, 86% (172 patients) were female and 14% (28 patients) male. Moreover, 80% (160 patients) were married and 60% (120) were illiterate. Mean age of the subjects was 57 ± 10.9 years, and mean duration of illness was 8.4 years, ranging from 1 to 25 years. In addition, 40% of the patients were educated, and 20 men (71.4%) and 12 women (7%) were employed (Table 1).

Of all the study subjects, 60 diabetics (30%) had depression, and 60 (30%) performed favorable self-care. There was no correlation between self-care and employment, gender, or education. In the present study, adherences to diet ($P = 0.002$) and to treatment ($P = 0.003$) were significantly less in depressed patients compared to non-depressed patients. There was no significant difference in self-care between the two groups of depressed and non-depressed diabetic patients in terms of exercise, foot examination, and self-monitoring of blood glucose. Generally, there was a significant correlation between self-care and depression ($P = 0.001$). Diabetic patients, 5 to 7 days per week, adhered to their diet (80%), foot examination (80%), and medication (76%). Only 12% of patients carried out blood glucose self-monitoring. The levels of adherence to medication treatment and blood glucose self-monitoring were higher in men than in women, but the difference was insignificant. However, exercise and physical activity were significantly higher in men than in women ($P < 0.004$) (Table 2 and 3).

Table 1. Demographics of type II diabetic patients attending Imam Khomeini Hospital's diabetes unit in Saqqez, 2012

Demographic variables		Depressed diabetic patients	Non-depressed diabetic patients	P
		Number (%)	Number (%)	
Gender	Male	8 (13.3)	20 (14.3)	0.5
	Female	52 (86.7)	120 (85.7)	
Marital status	Single	20 (33.3)	20 (14.3)	0.002
	Married	40 (66.7)	120 (85.7)	
Occupation	Employed	4 (6.7)	28 (20)	0.01
	Housewife/unemployed	56 (93.3)	112 (80)	
Education	Literate	16 (26.7)	64 (45.7)	0.08
	Illiterate	44 (73.3)	76 (54.3)	

Table 2. The relationship between depression and self-care in type II diabetic patients attending Imam Khomeini Hospital's diabetes unit in Saqqez, 2012

Depression	Self-care	Depressed		Non-depressed	
		Number (%)		Number (%)	
Favorable		8 (13.3)		52 (37.1)	
Unfavorable		52 (86.7)		88 (62.9)	
Total		60 (100)		140 (100)	

P = 0.001; df = 1; $\chi^2 = 11.33$

Table 3. Self-care behavior in depressed and non-depressed type II diabetic patients attending Imam Khomeini Hospital's diabetes unit in Saqqez, 2012

Diabetic self-care behaviors	Number of days per week	Depressed diabetic patients		Non-depressed diabetic patients		Total number of diabetic patients		P
		Number	%	Number	%	Number	%	
		Diet	0 to 4 days per week	20	33.3	20	14.3	
	5 to 7 days per week	40	66.7	120	85.7	160	80	
Exercise and activity	0 to 4 days per week	56	93.3	120	85.7	176	88	0.09
	5 to 7 days per week	4	6.7	20	14.3	24	12	
Blood glucose Self-monitoring	0 to 4 days per week	56	93.3	120	85.7	176	88	0.09
	5 to 7 days per week	4	6.7	20	14.3	24	12	
Foot examination	0 to 4 days per week	16	26.7	24	17.1	40	20	0.09
	5 to 7 days per week	44	73.3	116	82.9	160	80	
Adherence to treatment	0 to 4 days per week	20	33.3	28	20	48	24	0.03
	5 to 7 days per week	40	66.7	112	80	152	76	

Discussion

Today, despite huge costs spent on diabetes control, number of patients with diabetes and its complications are still increasing daily. A reason for this seems to be shortfalls in self-care, since diabetes requires a lifetime of special self-care behaviors (2). The results obtained in this study indicate that 60 (30%) diabetic patients had depression symptoms, and that there was a significant correlation between depression and marital and employment status. In a current study, the prevalence of depression among type II diabetic patients was 39%, and depression was significantly more prevalent in women and singles compared to men and married patients (26). In a study by Bell et al., depression was reported in 16% of patients, and was found to be associated with marital status and education level (27). In two different studies based on HANDS questionnaire, Gonzalez et al. found that 18 and 19% of patients had signs and symptoms of depression, respectively (21, 24). In the study by Lin et al., 12% of patients had symptoms of depression (28).

In the present study, only 30% of patients had favorable self-care conditions. This was

reaffirmed in a study by Vosoghi Karkazloo et al. that showed poor self-care capability among diabetic patients (29). A study by Baghaei et al. aiming to determine self-care status in diabetic patients attending the Diabetes Center in Kashan, Iran, revealed a moderate level of self-care among patients (6). In the study by Wynn et al. on diabetic patients, only 30.8% of patients had favorable self-care behaviors (30). Generally, results of all the above studies showed poor status of self-care in diabetic patients. Illiteracy appears to be a major reason for poor self-care, as in the studies by Vosoghi Karkazloo et al. and Baghaei et al. 62% and 65.3% of diabetic patients were illiterate, respectively (6, 29). Furthermore, in line with the results of the present study, no significant correlation was found between self-care and gender in the studies of Vosoghi Karkazloo et al. and Baghaei et al (6, 29).

In the present study, self-care in depressed diabetic patients was significantly lower compared to non-depressed diabetic patients ($P < 0.001$). This is confirmed by the study of Gonzalez et al. that showed poorer level of self-care in diabetic patients with depression compared to diabetic patients without depression ($P < 0.001$) (24). In a study, by Sajjadi et al.,

aiming to investigate the correlation between self-care and depression in patients undergoing hemodialysis, it was shown that self-care behaviors in depressed patients were significantly lower and poorer than in non-depressed patients ($P = 0.016$) (14). In the 2008 study by Gonzalez et al., the level of adherence to the recommended diet, exercise, and foot examination in diabetic patients with depression was lower compared to non-depressed diabetic patients (21). In another study, the level of adherence to the recommended diet, physical activity, and blood glucose self-monitoring was significantly poorer in depressed diabetics compared to non-depressed diabetic patients. Moreover, depressed diabetics tended to forget to take their medications 2-3 times more often than did non-depressed diabetic patients (24). In a study by Katon et al., lack of adherence to medication schedule in depressed patients was twice that in non-depressed diabetic patients (15).

In the present study, only a few patients attempted blood glucose monitoring more than 5 days per week (14.3% of non-depressed diabetic patients, and 6.7% of depressed diabetic patients). In a study by Gopichandran et al., 70% of patients had monitored their blood glucose only once in 3 months (31). In the study of Lin et al., only a quarter of diabetic patients monitored their blood glucose more than 5 days per week (28). A domain that was well cared for by patients in this study was examination of feet, as 80% of patients did this examination more than 5 days per week. However, in the study of Lin et al., examination of the feet was the poorest of self-care activities among diabetic patients and only a fifth of patients examined their feet regularly (28). In the present study, regular foot examination may have been due to the religious requirement of daily ablution of the feet by the patients; since most of the patients had expressed that they examined their feet during ablution. A Lack of adherence to treatment comprises 50% of treatment failures in chronic diseases. However, in the present study, the majority of patients adhered to their medication treatments more than 5 times per week.

A limitation in this study was completion of questionnaires through interviews for illiterate

patients, whilst literate patients completed the questionnaires themselves. Moreover, depressed patients showed little willingness to participate in this study.

Given the high prevalence of depression among diabetic patients, it is recommended that patients regularly be examined for symptoms of depression, so that it can be diagnosed early and treated in time. With early diagnosis of depression symptoms and signs, and ongoing encouragement, complications arising from lack of self-care may be reduced in diabetic patients.

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