

Adjustment to Diabetes Among Diabetic Patients: The Roles of Social Support and Self-Efficacy

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Received 2016 January 01; Revised 2016 January 15; Accepted 2016 February 15.

Abstract

Background: Controlling diabetes requires management of the relationship between the patient and the initial attention team. Social and environmental factors lead to lifestyle variations in relation to the health care, community support, and social support received. These areas have an effect upon patients' self-organization and self-efficacy. Self-efficacy can be recognized objectively as one of the strongest predictors of a patient's physical condition, causing behavior variations. It can be defined as an individual's level of trust in his/her ability to adopt a particular kind of behavior.

Objectives: The aim of this study is to examine the roles of social support and self-efficacy in predicting the level of adjustment to living with diabetes in diabetic patients.

Patients and Methods: In this cross-sectional study, we investigated the ability to predict diabetic patients' adjustment to diabetes through analyzing levels of social support and self-efficacy. The population used for this survey was a random sample of 167 diabetic patients, who were dependent on insulin injections. The participants were 18 to 60 years old and had been members of the Iranian Diabetes Society since 2014. They were asked to complete Sullivan's "adjustment to diabetes" test, and were examined using 1) Zimet's Multidimensional Scale of social support and 2) the Coping Self-efficacy scale for confrontation of problems. Data analysis was performed using the SPSS (version 16) statistical software package, for which Pearson's correlation test and the multiple regression method (linear method) were used.

Results: The data revealed that self-efficacy ($P < 0.001$) and social support ($P < 0.001$) are indicators that can significantly anticipate levels of adjustment in diabetic patients. Moreover, it has been revealed that self-efficacy plays a significant and, indeed, fundamental role in adjustment anticipation.

Conclusions: It can be concluded that self-efficacy and social support are important in predicting the adjustment levels of diabetic patients. Furthermore, self-efficacy has a more potent function here than social support as it affects every individual's self-confidence and quality of life.

Keywords: Diabetes, Adjustment, Social Support, Self-Efficacy

1. Background

Diabetes mellitus is a chronic influent perturbation specified by abnormalities in glucose metabolism due to difficulties with the manufacture and/or usage of the hormone insulin. It is one of the biggest obstacles to human safety in terms of levels of outbreak, the associated expense, and the load placed upon an individual living with the condition. Diabetes mellitus results in high levels of disease and a great risk of fatality (1).

This chronic illness causes a patient's general health and quality of life (QOL) to deteriorate. Intense dietary limitations and diurnal self-administration of oral drugs or insulin may be detrimental to the individual's experience of life. The long-term complexities associated with dia-

betes, such as nephropathy, neuropathy, heart disease, and strokes, with their significant impact on a person's health, may also have a negative effect on QOL (2).

The need for diabetic patients to control their condition means that many variations often need to be made to their lifestyles (using insulin/oral medicines, changing eating habits, measuring blood sugar, etc.). The problems caused by diabetes and the complexities that may appear while patients and their families are trying to adjust to the changes can affect QOL negatively. These factors contribute to the adjustment difficulties faced by patients – and particularly by adolescents who have diabetes (2).

In 1988, the concept of self-efficacy was added to the health belief model (HBM) (3). Several studies have shown that HBM factors are associated with diabetes self-

management (4). Recognition of the modifiable factors influencing daily foot-exam practice is needed in order for strategies to be planned that will increase the practice of foot-care by patients. However, literature on the social-psychological factors underlying daily foot-exam practice is sparse (5). Taking control and defending oneself against problems are key aspects of self-efficacy, which refers to the conception of one's ability to successfully maintain required behaviors (6). Self-efficacy in a diabetic patient can be defined as the patient's confidence in his/her ability 1) to keep functioning, despite chronic disease, and 2) to control and manage the symptoms.

The daily foot exam is the most important foot-care behavior (7). Therefore, self-foot-examination practices should be promoted to diabetes patients. Self-efficacy can be said to include foot-care behaviors and, thus, foot-exam practice may be indicative of HBM factors (8).

Investigations have also shown that social support can be a valuable resource in helping people to adjust better to the problems that disease inflicts (9). Social support can be defined as support and assistance given to others. A lack of social support, particularly from friends and family, can also be considered an obstacle to adherence to self-care, while high levels of support are related to better long-term disease handling, improved health consequences, and more effective glucose control (10, 11). In spite of documentary evidence that social support, self-efficacy, and self-control are significant in predicting levels of diabetes self-care, it is less clear exactly how these factors have an effect on patients (12).

2. Objectives

The purpose of this cross-sectional study is to specify the effect of type 2 diabetic patients' perceived social support and self-efficacy on their adjustment to life with diabetes.

3. Patients and Methods

3.1. Participants

We conducted a cross-sectional study at the Iranian diabetes society in Tehran in 2014. The sample consisted of 167 diabetic patients. The patients' suitability for the study was based on the American diabetes community criteria for diabetes recognition, as well as the clinical data placed on the patients' files. Research variables and demographic variables including age, sex, and academic situation were controlled by the researchers, as below.

The coverage criteria were: 1) being diabetic, according to the recognition of a specialist, 2) the use of oral medications and/or insulin, and 3) an age of 18 - 60 years old. All the

patients had a high school diploma at least, and they had declared any other physical or psychological disorders to the Iranian diabetes society.

The patients were selected randomly according to the above criteria. The purpose of the study was explained to the patients and written, informed consent was given by all of them. The participants were paid \$2 for taking part in the study.

3.2. Method

3.2.1. Coping Self-Efficacy Scale (CSE)

We determined self-efficacy in diabetes management by using the CSE scale, which requires patients to rate their ability to control the condition over the former six months. The participants were given a shortened, 13-item version of the CSE (reduced from the full 26-item scale) (13). The aim of this method was to assess patients' levels of certainty in terms of their ability to conduct specific behaviors when faced with life challenges. The answers were based on an 11-point scale ranging from 0 ('cannot do at all') to 10 ('definitely can do'). The 13 CSE items were separated into three subscales: 1) the ability to cope by "breaking an unmanageable problem down into smaller sections," b) the ability to stop negative thoughts and feelings, or "prevent sad reactions," and c) access to emotional help from friends and family: "support with the things you require." These subscales contained six, four, and three items respectively. A self-efficacy grade was created for each of the three subscales by adding the items in each class together. To meet the aims of this study, we focused specifically on caregivers' potential to use difficulty-concentrated coping ($\alpha = 0.87$), which has been shown to be predictive of reduced psychological suffering and an enhanced sense of psychological well-being (14, 15).

3.2.2. The Diabetes Adjustment Scale (DAS)

advanced by Sullivan, this scale measures viewpoints, effects, and manners in relation to diabetes. It has four subscales, derived from component analysis, which measure attitudes toward diabetes and 1) the body, 2) separation, 3) match correlation, and 4) family relationships. This method taps into broad range of concerns linked to diabetes. The DAS estimates the patient's view of his/her feelings and behaviors pertaining to diabetes. In this study, the relationship of age and social class to the total DAS result, as well as to each subscale, was examined using the Pearson correlation method. It was found that age and social class do not have a considerable correlation with the total DAS score or the subscale scores. Because the individual items examined via the DAS represent a variety of diabetes-related outlooks, effects, and actions, we also used

this scale to identify particular viewpoints that juveniles have early on in the diabetes-management process. Collations with t-tests demonstrated that males did not differ significantly from females in terms of DAS totals and sub-scale scores.

3.2.3. The Multidimensional Scale of Perceived Social Support (MSPSS)

this scale was developed as a self-report system for measuring social emotional support, in which 2-item gradings are made on a 7-point Likert-type scale, ranging from “very forcefully contradict” to “very strongly consent” (16). In our study, a 12-item MSPSS was created to analyze the efficacy of support from the following three origins: family (items 3, 4, 8, and 11), friends (items 6, 7, 9, and 12), and notable others (items 1, 2, 5, and 10).

It took 30 minutes for each patient to complete the questionnaire.

3.3. Data Analysis

The data were analyzed using SPSS (version 16) software at descriptive and analytical levels. At the descriptive level, we used frequency, mean, standard deviation, minimum, and maximum. In order to achieve the study's objectives, correlations and regressions (using the linear method) were computed. A significance level of 0.05 was adopted in all the analytical tests conducted.

4. Results

The participants included 167 individuals aged between 18 and 60 years. Of these, 93 (55.68%) were male and 74 (44.31%) were female. The respondents' mean age was 31.42 (SD 12.37) years. Essential short statistics (e.g. mean, standard variation, minimum, and maximum) were computed for each factor (Table 1).

The results showed that there is a significant positive correlation between self-efficacy and social support in relation to diabetes adjustment in diabetic patients (0.001). The relevant data are shown in Table 2.

4.1. Predictions of Diabetes Adjustment Through Self-Efficacy and Social Support in Diabetic Patients

Our data revealed that there is a strong and positive relationship between self-efficacy, social support, and diabetes adjustment. Fifty-two percent of variations in total scores for diabetes adjustment could be anticipated by examining self-efficacy and social support levels ($P = 0.001$). The analyses of variance which supports the credit in step-wise regression for predicted the diabetes adjustment (Table 3).

Considering the values for Beta and the significance of the t values in Table 4, it can be observed that self-efficacy (Beta = 0.48, $P = 0.001$) and social support (Beta = 0.35, $P = 0.001$) can be used to anticipate adjustment to diabetes. It can be concluded, therefore, that self-efficacy and social support are important in predicting the adjustment of diabetic patients to their condition. On this basis, a model was formulated using a regression equation (Equation 1):

$$Y = 0.077 (\text{self} - \text{efficacy}) + 0.072 (\text{social support}) + 12.23 \quad (1)$$

4.2. Predictions for Diabetes Adjustment Through Self-Efficacy in Diabetic Patients

In relation to this aim, the results showed that self-efficacy could be anticipated significantly at a level of 42% of the variance in diabetes patients (Beta = 0.65, $P = 0.001$). High levels on the self-efficacy scale were predictors of greater levels of illness adjustment (Table 4). Accordingly, a model was formulated using a regression equation (Equation 2):

$$Y = 0.104 (\text{self} - \text{efficacy}) + 15.083 \quad (2)$$

4.3. Predictions for Diabetes Adjustment via Social Support in Diabetic Patients

Social support could significantly 34 percent of variance of diabetes adjustment total score (Beta = 0.58, $P = 0.001$). It was found that patients with access to social support from family, friends, and others adjusted better to life with diabetes (Table 5). A model was thus formulated using a regression equation (Equation 3):

$$Y = 0.119 (\text{social support}) + 15.72 \quad (3)$$

The study has also revealed that self-efficiency plays a more fundamental role than social support in adjustment prediction for diabetic patients. Given that self-efficacy affects all people's self-confidence and quality of life, it can be concluded that it has a more potent effect than social support.

5. Discussion

The principal goal of this study was to examine the effects of self-efficacy and social support on patients' adjustment to life with diabetes. We found that there was a significant association between self-efficacy and patients' adjustment, and social support and patients' adjustment. Moreover, our data revealed that self-efficacy is more effective than social support, where adjustment to diabetes is concerned. Our findings support the results of previous studies such as Liu et al.'s 2013 investigation, where social

Table 1. Descriptive Statistics for the Scores Relating to Social Support and Diabetes Adjustment

	N	Minimum	Maximum	Mean \pm Std. Error	Std. Deviation
Age	167	18	60	31.42 \pm 0.95	12.37
Self-efficacy	167	25	123	75.66 \pm 1.75	22.87
Social Support	167	20	84	61.07 \pm 1.38	17.87
Diabetes Adjustment	167	11	29	22.94 \pm 0.28	3.62

Table 2. The Relationship Between Self-Efficacy and Social Support, and Diabetes Adjustment

	Self-Efficacy	Social Support	Diabetes Adjustment
Self-efficacy	1	0.47 ^a	0.65 ^a
Social Support	0.47 ^a	1	0.58 ^a
Diabetes Adjustment	0.65 ^a	0.58 ^a	1

^a A correlation is significant at a level of 0.01.

Table 3. Predictions for Diabetes Adjustment in Diabetic Patients via Self-Efficacy and Social Support

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	P Value
1	0.53a	0.526	0.520	2.50	91.04	0.000

Table 4. Prediction of Diabetes Adjustment in Diabetic Patients via Self-Efficacy

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	P Value
1	0.49	0.428	0.425	2.74	123.543	0.000

Table 5. Prediction of Diabetes Adjustment in Diabetic Patients via Social Support

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	P Value
1	0.319	0.344	0.340	2.94	86.53	0.000

support was found to be positively associated with adjustment to diabetes in type 2 diabetic patients. In addition, it was observed that increased social support may lead to a better quality of life for the patient. Such social support can be defined as a person's emotional satisfaction from being understood and respected by family, friends, associates, and the community (17).

Self-efficacy is recognized empirically as one of the strongest predictors of health-behavior change (18). Several studies have shown that increased self-efficacy heightens feelings of psychological well-being (19, 20). This study indicates that high levels of self-efficacy can also be predictors of positive adjustment to life with diabetes. Previous investigations into self-efficacy include Chin et al. (2013), who examined the relationship between self-efficacy and self-foot examination, with a moderate outcome (8, 18, 21).

Although we have interpreted self-efficacy here as a predictor of self-management, in line with previous intervention studies (22-28), given the cross-sectional nature of this research, we cannot prove whether or not the relationship between self-efficacy and self-management is causal. As efficient self-management behavior may improve self-efficacy over time, however, it is likely that there is a mutual link between these areas. This area needs further examination.

In conclusion, self-efficacy can be understood as a person's trust in his or her ability to perform particular activities under specific conditions. It is a key idea in the care of patients with chronic disorders. Furthermore, social support can be a valuable resource in terms of helping people to adapt better to the problems that disease inflicts. It is an important tool for health professionals –especially

nurses. Knowing the procedures and structures needed for social support enables a better understanding of the ways in which people's social relationships function, as well as how these relationships can influence behaviors affecting health. Therefore, further research in this field should be encouraged, using different models and larger samples in order to expand the data available on the correlation between social support and illness. Our study limitations include: 1) the data collection process (using a self-report instrument that has its own limitations), 2) the fact that this study uses a non-experimental methodology, and 3) the inability to draw conclusions about causality within the relationships examined here.

Acknowledgments

This study was supported by a donation from the young researchers and elite club, Rudehen branch, Islamic Azad University (Rudehen, Iran).

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