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Depression, Self-efficacy, and Adherence in Patients With Type 2 Diabetes

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ABSTRACT

Depression and self-efficacy can be major factors in treatment adherence for patients with type 2 diabetes. Fifty-five adults with diabetes completed a depression inventory, a self-efficacy questionnaire, and a diabetes self-care inventory. As depressive symptoms increased, self-efficacy decreased ($P = .000$). As depressive symptoms increased, participants reported following the appropriate diet ($P = .020$) and exercise ($P = .034$) recommendations less often. Participants with higher self-efficacy were less likely to smoke ($P = .031$), and were more likely to adhere to diet ($P = .000$) and exercise ($P = .000$). Interventions should be multifaceted to address various factors that affect diabetes adherence.

Keywords: adherence, depression, self-efficacy, self-management behaviors, type 2 diabetes mellitus

Mr S is a 48-year-old man who is morbidly obese and receiving follow-up with his nurse practitioner for type 2 diabetes mellitus. Reflecting on his 24-hour diet recall of heavy carbohydrate-laden fast food, Mr S states, "I know I should be eating healthy, I just don't want to. I would never commit suicide but if I keep eating this way, I won't have to."

Patients with depression are significantly more likely to be nonadherent with diabetes treatment plans than patients who are not depressed.[1] Studies also associate diabetes adherence to self-efficacy. In fact, self-efficacy may serve as a mediator between diabetes and adherence.[2] By screening for depressive symptoms and low self-efficacy in diabetes patients, providers can identify these potential barriers to treatment adherence and tailor interventions accordingly.

RESEARCH QUESTIONS

The purpose of this study was to answer the following questions: (1) What is the average level of depressive symptoms, self-efficacy, and adherence in patients with type 2 diabetes mellitus? (2) What is the relationship among depressive symptoms, self-efficacy, and adherence in patients with type 2 diabetes mellitus? (3) Do men and women differ in their levels of depressive symptoms, self-efficacy, and adherence?

LITERATURE REVIEW

Depression

Depression is 2 times more likely to occur in adults with diabetes than in adults without diabetes.[3] Depression coupled with diabetes can have devastating effects on health. Research studies show that the presence of depressive symptoms leads to an increased risk of heart attack, stroke, end-stage renal disease, retinopathy, and other diabetic complications.[4,5] Unfortunately, a large percentage of depressed patients go unrecognized and untreated.[1] Li and colleagues found that, in 11,850 adults with diabetes, 45% had either major or minor depression that was undiagnosed. Their study also showed that undiagnosed depression was more common among the unemployed, adults with less than a high school diploma, those with fair or poor health, and those with Hispanic ethnicity.[6] However, recognizing severe depression may not necessarily lead to treatment. In a study of 115 patients, Hill and colleagues reported that, in cases where severe depression was identified, most of the patients did not seek treatment for depression.[7]

Self-efficacy

Self-efficacy plays an important role in successful treatment in many chronic illnesses. Self-efficacy is an individual's belief that he or she is able to complete a given task successfully to meet the desired goal.[8] The

patient's self-efficacy may affect behavioral choices and subsequent outcomes. Self-efficacy, in the area of rehabilitation, has been especially important for assisting patients with engaging in behavioral change and adjusting to a disability.[9]

Adherence

The cost of treating diabetes and diabetes-related complications has risen from $174 billion in 2007 to $245 billion in 2012.[10] Self-care regimens are important to maintaining good glycemic control and preventing costly complications.[11,12] Self-care regimens include blood glucose monitoring, foot care, compliance with medication, and adhering to appropriate diet and exercise. Self-care regimens with more frequent follow-up and monitoring have been shown to improve adherence to diet, foot care, and medications.[13]

Depression, Self-efficacy, and Adherence

Adherence to diabetes regimens can be strongly predicted by diabetes self-efficacy. The greater the self-efficacy, the more likely the patient is likely to adhere to the diabetes regimen and expected self-management behaviors.[2,14,15] Similarly, levels of adherence can be greatly impacted by comorbid depression. Patients with major or minor depression are less likely to exercise, more likely to smoke, and less likely to perform various self-care activities.[16,17]

METHODS

Design

A cross-sectional, descriptive, correlational design was used in this study to determine baseline levels of depressive symptoms, diabetes self-efficacy, and adherence to the diabetes regimen in patients with type 2 diabetes in a clinic setting, and the degree to which adherence was influenced by depressive symptoms and diabetes self-efficacy.

Setting

The study was conducted in March and April of 2009 at 2 locations: a primary-care clinic and an endocrinology clinic in the midwestern United States.

Sample

The population consisted of adult patients with type 2 diabetes. Inclusion criteria for participants were: any race and gender with type 2 diabetes (self-reported); age range 18 to 65 years; ability to speak and read English or Spanish (study instruments were available in English and Spanish); and mental competence.

A power analysis was performed before data collection to determine an adequate sample size. To perform a 2-tailed t test with 2 groups (males and females), 25 per group, 50 participants in total were required to have a power of 0.80 and an alpha level of 0.05. This produced a moderate to large effect size of 0.55, but allowed statistical comparison of group means. Therefore, the intended sample size was overinflated by approximately 10% for a total of 55 participants.

Study Instruments

Participants completed the Beck Depression Inventory—II, a 21-item self-report questionnaire assessing for symptoms and severity of depression. Each of the 21 items has a Likert-type scale of 0 to 3. A total depression score is obtained by adding each item score. A score of 0 to 13 indicates minimal depression, 14 to 19 mild depression, 20 to 28 moderate depression, and 29 to 63 severe depression. The instrument has a reliability of 0.92. Validity for the instrument is high and is positively correlated with the Hamilton Psychiatric Rating Scale for Depression ($r = 0.71$, n = 87) and the Center for Epidemiological Studies Depression Scale ($r = 0.86$, n = 95).[18]

Participants also completed the diabetes self-efficacy scale, which was developed at the Stanford University Patient Education Research Center. This is a self-report questionnaire with 8 items measuring a participant's level of confidence in activities related to management of diabetes. Each item is presented with a Likert-type scale ranging from not at all confident (1) to totally confident (10). The score for the scale is the average of the 8 items. The diabetes self-efficacy scale has a reliability of 0.82. Further psychometric data are still being examined.[19]

Adherence to the diabetes regimen was measured using the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire, which is a 17-item questionnaire with 6 categories of self-care (diet, exercise, medication, glucose testing, foot care, and smoking). Each item is measured on a numeric rating scale of 0 to 7. The respondent is asked to identify the