Depression, Health Beliefs, and Locus of Control: Relationship to Glycemic Control in Hispanic and African Americans with Diabetes

Diabetes is a leading cause of death and disability in the United States. Depression is more common among patients with diabetes when compared to patients without diabetes. We evaluated the relationship between the glycemic control, depression and health beliefs in minority patients with diabetes. Forty of a planned 300 participants were recruited from the King/Drew Medical Center's diabetes clinics. The subjects responded to four questionnaires: the Beck's Depression Inventory, Health Belief Scale, and Multidimensional Health Locus of Control B and C. Laboratory data from the last six months were extracted from the electronic laboratory records and recorded. Definite depression was noted in 30% of our population and probable depression was noted in 15%. Diabetes control was not significantly correlated with depression in our preliminary findings. Trends in our study suggest a higher level of support as measured by the Health Beliefs Scale is associated with a lower likelihood of reporting depression (P=0.08). Also, patients who had higher internal locus of control had higher levels of HbA1c (P=.08). Our preliminary data support prior reports of the high prevalence of depression among person with diabetes, and suggest social support is inversely related to the prevalence of depression. Definitive recommendations await the completion of study.

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Introduction

Diabetes is a disorder of the metabolism that affects nearly 6.3% of the American population, and it is the leading cause of death and disability in the United States. Depression has been found to be 2 to 3 times higher in patients with diabetes when compared to patients without diabetes. Consequently, it has been found that there is an increased number of diabetes complication and poor glycemic control in patients with diabetes and depression. Both Hispanics and African Americans are at greater risk to suffer from type 2 diabetes and its complications than their Caucasian counterparts. Furthermore, the minority, socio-economically, disadvantaged, and underserved population continues to battle with an epidemic of undiagnosed, untreated mental disorders, due in part to the stigma associated with these disorders. We performed a study to determine the association, if any, between depression and glycemic control among Hispanic and African Americans. Our hypothesis was that Hispanics and African Americans with diabetes and depression have worse glycemic control compared to those without depression. We also assessed other qualitative parameters of health such as health beliefs and perceived locus of control.

Methods

The Charles R. Drew University institutional review board approved this study. Patients recruited from a randomized list of diabetic patients in King/Drew Medical Center's diabetes clinics. The patients were approached by research assistants and asked if they wanted to participate and if they chose to, they set up an appointment at the Clinical Trials Unit. The subjects were administered four face-to face standardized questionnaires: the Beck's Depression Inventory, Health Belief Scale, and Multidimensional Health Locus of Control B and C. They were paid 20 dollars for their participation. Beck's Depression Inventory is a validated tool used to diagnose a patient with depression. The Health Beliefs Scale is used as a method to explain and predict a patient's preventive health behaviors. The Multidimensional Locus of Control questionnaire measures the degree to which a patient believes his/her health is controlled by internal or external factors such as themselves, powerful others, and chance. Patient's HbA1c, fasting blood glucose, fasting lipid panel, and chemistry lab results from the last six months were extracted from the computer-based laboratory records and recorded.

Results

A total of 40 of our planned 300 subjects participated to date (23 female, 17 male) with a refusal rate of 38%. There were 25 Hispanic participants and 15 African American participants. The study sample characteristics are shown in Table 1. Hispanics were five times more likely to refuse participation than African Americans. A majority (75%) of the subjects were unemployed and 55% were of foreign born. Depression was noted in 45% in our population. 30% of the population had definite depression and 15% of the population had probable depression. No relationship was found between HbA1c

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and depression. Trends in our study indicate that the higher level of support as measured by the Health Beliefs Scale, is associated with a lower prevalence of depression ($P=0.08$). Patients who had higher internal locus of control had higher levels of HbA1c, and thus, less controlled diabetes ($P=.08$)

Study sample characteristics

Characteristics	Mean	Range
Age (years)	52	19–78
Income (annual family)	$10,862	$1,080–$20,000
Length of disease	6 years	1 month–20 years
ER visits/year	0.3	0–2
HbA1c (%)	9.26%	5.2%–14.2%
Beck's Depression Inventory Score	14.425 pts.	1–45 pts.

CONCLUSION

Our preliminary findings reinforce prior reports of the high prevalence of depression among person with diabetes. Our findings further suggest a high level of perceived social support was associated was lower rates of depression. Assessing the support system of individuals with diabetes may be important in determining if they are at risk for depression. Also we found that a higher internal locus of control was associated with lesser control of diabetes. We did not find any association between diabetes and depression. Having a high internal locus of control may cause a high level of stress, thus diabetes education should focus on more creative ways of controlling the disease in persons with such beliefs. Our preliminary findings must be further validated as we continue our enrollment to achieve our target of 300 patients at which time more substantial conclusions can be formulated.