Cultural and Cognitive Determinants of Personal Control in Older African Americans with Diabetes

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Objective: To describe the determinants of personal control over diabetes complications in older African Americans (N=123) with type 2 diabetes.

Methods: We administered structured instruments to assess perceptions of personal control, time orientation, religiosity, depression, and cognition in this cross-sectional study.

Results: More years of education ($p \leq .001$), better Clock Drawing ($p \leq .001$), higher levels of Religiosity ($p \leq .04$), and lower Present Time Orientation ($p \leq .01$) were independent predictors of higher levels of Personal Control.

Discussion: Risk perceptions of control over diabetes complications vary among older African Americans according to cultural constructs, executive function, and education. This finding highlights the cultural diversity in this population and the potential impact of culturally-determined views and cognitive function on health behaviors. Cognitive screening of older persons with diabetes and interventions that incorporate perceptions of time and religion to increase rates of eye examinations are needed.

Key Words: Diabetes´African American ■ Culture ■ Geriatrics

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INTRODUCTION

Blindness and vision impairment due to diabetic retinopathy (DR) are highly prevalent, preventable, and disabling conditions of older adults with diabetes mellitus.[1–3] Surveillance with dilated fundus examinations (DFEs) can detect early asymptomatic signs of DR and prompt treatment to prevent vision loss.[4–6] Although DFEs are available to all Medicare-eligible patients, African Americans are less likely to obtain them and more likely to go blind from DR than whites.[7,8] Socioeconomic and cultural barriers contribute to this vision-related health disparity.[8–12] The socioeconomic barriers include difficulty accessing ophthalmologists, the debilitating effects of poverty, and the polarizing ways that health services are organized and financed. The cultural barriers arise from differences in education, religion, experiences of discrimination, and culturally-determined views on managing diabetes and the risk of complications. These barriers necessitate new, culturally relevant interventions to increase rates of DFEs in African Americans to prevent vision loss.

We are currently conducting a randomized clinical trial that compares the efficacy of Behavior Activation, which is a culturally relevant home-based behavioral intervention, with Supportive Therapy, which is an attention control treatment, to increase rates of DFEs in older African Americans with type 2 diabetes.[13] A secondary aim examines the extent to which variations in perceived ability to control of diabetes, cultural characteristics, and cognitive function moderate responses to the two interventions. Although the impact of cultural differences between racial groups is well-recognized, less is known about how variations within racial groups influence health behaviors and beliefs.[14] Differences in education, income, region of origin, neighborhood residence, and degree of assimilation may influence the impact of cultural constructs such as time orientation and religiosity on health perceptions and behaviors.[15–17] Time orientation refers to the salience of present and future time considerations, where the former focuses on immediate or short-term consequences and the latter on planning for the future.[15] People oriented to the future are more likely to engage in health-promoting behaviors whereas those who are more present-oriented are less able or inclined to connect present behaviors with future outcomes.[15,18] Religiosity, or spiritual beliefs and behaviors, is closely linked to beliefs about health and disease in older African Americans.[15,18] Assessing the impact of these cultural characteristics on health beliefs will enable us to design future interventions to improve diabetes control and prevent vision loss in high risk subgroups of this population.

This paper describes the cross-sectional relationships between perceptions of personal control over diabetes complications and time orientation and religiosity in a sample of older African Americans who had not had a DFE within the previous year and are enrolled in the aforementioned clinical trial. We used the Health Belief Model to guide our understanding of how health beliefs predict participants' actions to prevent adverse health outcomes.[19] It invokes the concepts of perceived

susceptibility (one's chances of experiencing a disease), perceived severity, perceived benefits (efficacy of the advised action to reduce risk), perceived barriers, cues to action (strategies to activate "readiness"), and self-efficacy. The assessments at baseline included measures of risk perceptions of diabetes complications, the cultural characteristics, and cognitive function, given the latter's relevance to risk perceptions and adherence to preventive health behaviors.

METHODS

The participants in this study (N = 123) are enrolled in an ongoing randomized controlled clinical trial that compares the efficacy of Behavior Activation (active treatment, BA) to Supportive Therapy (control condition) to increase rates of DFEs. In the trial, participants are randomized in a 1:1 ratio to the two interventions. Community Health Workers (CHWs) deliver four in-home treatment sessions over three months to participants in both treatment groups during this six month clinical trial. The CHWs who delivered BA worked with participants to overcome avoidant tendencies through goal setting, activity scheduling, and graded task assignments.[13] These procedures included identifying barriers to obtaining a DFE, providing ophthalmology referral information, discussing steps to make a DFE appointment, and formulating an Action Plan to obtain the DFE. The primary outcome of the clinical trial was obtaining a documented DFE, assessed masked to treatment assignment. The primary efficacy analysis compares the proportion of participants in the two groups who have completed a DFE at six months. The data we report here were obtained at the baseline assessment.

CHWs who were concordant with the target population in language, race and ethnicity recruited and assessed participants. The CHWs conducted direct community outreach activities and reviewed electronic medical and billing records of the outpatient primary care medical practices of Thomas Jefferson University (TJU) and Temple University (TU) to identify patients who were African American, over age 65, had physician-diagnosed type 2 diabetes, and no documented DFE in the preceding year. Exclusion criteria included diagnoses of dementia, use of an anti-dementia medication, cognitive impairment on an abbreviated Mini-Mental Status Examination, psychiatric disorder other than depression or anxiety, life expectancy less than 12 months, need for dialysis, and hearing impairment that precluded research participation.[20] The CHWs mailed introductory letters to potentially eligible participants signed by their primary care physicians. For TJU patients, the letter included an opt-out clause that enabled patients to decline further contact. One week after mailing the letter, the CHWs telephoned patients who did not opt-out to explain the study and confirm willingness and eligibility to participate. The recruitment letter mailed to TU patients required an opt-in approach (i.e., interested patients called a central number to express their interest in study participation). The institutional review boards of the two Universities approved these respective recruitment methods. For potentially eligible participants, the CHW scheduled an in-home visit within the next 2 weeks to review the study, confirm eligibility, and obtain written informed consent and conduct baseline assessments. The CHWs also use finger sticks and a portable measurement device to measure glycated hemoglobin A1c (HbA1c) levels, which provides an index of glycemic control over the preceding 3 months. The reference range in healthy persons is 4%–5.9%. The American Diabetes Association recommends HbA1c levels less than 7.0% for most patients with diabetes.[21] The CHWs also administered the following instruments:

Risk Perceptions of Diabetes Complications: The CHWs administered the Personal Control subscale of the Risk Perception Survey–Diabetes Mellitus (RPS-DM), which assesses perceptions of risk of diabetes complications.[22] The 4 questions that comprise this measure are: 1) "I feel that I have little control over risks to my health"; 2) "If I am going to get complications from diabetes, there is not much I can do about it"; 3) "My own efforts can help control my risks of getting diabetes complications"; and 4) "If I make a good effort to control the risks of diabetes complications, I am much less likely to get complications". Participants rated responses on a 4-point Likert scale ranging from "strongly agree" (1) to "strongly disagree" (4); questions 3 and 4 are reversed scored. Average item scores range from 1 to 4, with higher scores indicating more perceived control and risk. The RPS-DM Personal Control subscale has demonstrated reliability (Cronbach's alpha = .69) and validity.[22] The mean Personal Control score in a sample of primary care patients with diabetes (43.6% African American) was 2.87.[22]

Religiosity and Time Orientation: Lukwago *et al* (2001) developed brief scales to measure cultural characteristics that are prevalent in urban African Americans and are associated with health-related beliefs or behaviors.[18] In this study, the Present Time Orientation, Future Time Orientation, and Religiosity scales were administered (Table 1). Responses range on a 4 point scale from "strongly agree" (3) to "strongly disagree" (0), with higher scores indicating higher levels of the characteristic. In the initial psychometric testing in African American women from low income urban housing communities, Cronbach's alpha coefficients were: Religiosity (9 items; α=.88); Present Time Orientation (5 items; α=.73), and