Published in final edited form as:

Diabetes Educ. 2013 ; 39(6): 848–855. doi:10.1177/0145721713507112.

The Relationship between Coping Styles in Response to Unfair Treatment and Understanding of Diabetes Self-Care

Michelle L. Dyke, BS,

Massachusetts General Hospital Boston, Massachusetts

Yendelela L. Cuffee, Ph.D., MPH,

New York University School of Medicine Department of Population Health New York, New York

Jewell H. Halanych, MD MSc,

University of Alabama at Birmingham Department of Medicine Division of Preventive Medicine
Birmingham, Alabama

Richard H. McManus, MSW, MPP,

University of Massachusetts Medical School Department of Quantitative Health Sciences
Worcester, Massachusetts

Carol Curtin, MSW, and

Eunice Kennedy Shriver Center Waltham, Massachusetts

Jeroan J. Allison, MD, MScEpi

University of Massachusetts Medical School Department of Quantitative Health Sciences
Worcester, Massachusetts

Abstract

Purpose—This study examined the relationship between coping style and understanding of diabetes self-care among African American and white elders in a southern Medicare managed care plan.

Methods—Participants were identified through a diabetes-related pharmacy claim or ICD-9 code and completed a computer-assisted telephone survey in 2006-7. Understanding of diabetes self-care was assessed using the Diabetes Care Profile Understanding (DCP-U) scale. Coping styles were classified as active (talk about it/take action) or passive (keep it to yourself). Linear regression was used to estimate the associations between coping style with the DCP-U, adjusting for age, sex, education, and comorbidities. Based on the conceptual model, four separate categories were established for African American and white participants who displayed active and passive coping styles.

Results—Of 1,420 participants, the mean age was 73 years, 46% were African-American, and 63% were female. Most respondents (77%) exhibited active coping in response to unfair treatment. For African American participants in the study, active coping was associated with higher adjusted mean DCP-U scores when compared to participants with a passive coping style. No difference in DCP-U score was noted among white participants on the basis of coping style.

Conclusions—Active coping was more strongly associated with understanding of diabetes self-care among older African Americans than whites. Future research on coping styles may give new insights into reducing diabetes disparities among racial/ethnic minorities.

Corresponding Author: Yendelela L. Cuffee, Ph.D., MPH Center for Healthful Behavior Change Department of Population Health
227 East 30th St, 6th Floor, 630D New York, NY 10016 Phone: 646.501.2624 Yendelela.Cuffee@nyumc.org.

The coauthors had no potential conflicts of interest relevant to this article.

Introduction

Diabetes is the seventh leading cause of death in the United States and is responsible for complications such as blindness, cardiovascular disease, kidney disease, and amputation.¹ According to the Centers for Disease Control in 2010, approximately 25.6 million Americans, roughly 11.3% of the total US population, were living with diabetes, and an additional 35% had pre-diabetes. Diabetes is more prevalent amongst African Americans with 12.6% of African Americans and 7.1% of non-Hispanic whites diagnosed with diabetes respectively. African Americans also suffer from more frequent and more severe diabetes-related complications and mortality.¹

Despite advances in diagnosis and treatment, diabetes management is difficult, and patients continue to suffer from debilitating yet preventable complications.² Effective disease management reduces the risk of complications, and proper diabetes self-care is an essential component of disease management.³ Barriers to diabetes self-care remain a growing topic of research, particularly involving minority populations.

Due to the inherent complexities of diabetes, self-care must be preceded by a comprehensive understanding of the self-care regimen.⁴ Factors leading to better diabetes self-care are complex and include socioeconomic status, access to healthcare, diabetes education, patient-provider relationships, patient self-efficacy, and the ability to manage complex comorbidities.^{4,5} Other psychosocial factors, including experiences with unfair treatment and how one copes, may also have a role to play in self-care. Unfair treatment on the basis of personal attributes such as race, gender, weight, and socioeconomic status has been shown to be detrimental to overall health.⁶ However, the ways in which patients cope in response to unfair treatment has received less research attention. In fact, healthy coping has been identified by the American Association of Diabetes Educators (AADE) as one of seven key self-care behaviors, acknowledging that coping is related to motivation, which can be difficult to maintain under stress. When coping becomes difficult, the individual's ability to manage one's diabetes suffers accordingly.⁷

Hypotheses

This study examined the following hypotheses:

1. Patients who rely on active coping styles will have a better understanding of diabetes self-care compared to patients who employ passive coping styles.
2. The relationship between coping and understanding will differ by race/ethnicity.

Methods

Research Design

The protocol for participant selection has been described previously by Halanych et al.⁸ and was designed to create an analytic sample with approximately equal numbers of African American and white elders diagnosed with diabetes and living in the Southeast US. The sampling region encompassed both urban and rural communities of varying socioeconomic status. Therefore, a cross-sectional observational study design was selected and administered via a computer assisted telephone interview. Self-reported survey data was then coupled with claims and pharmacy data obtained from the health plan and the Center for Medicare and Medicaid Services. This study was approved by the Western Institutional Review Board.

Sample/Setting

Participants were selected from a pool of Medicare managed care enrollees receiving health insurance in Alabama, Florida, and North Carolina. Participants met the following inclusion criteria: (1) African-American or Caucasian race/ethnicity; (2) at least 65 years of age; (3) continuous enrollment in the health plan from January 1, 2003 through December 31, 2003; and (4) diagnosis of diabetes mellitus confirmed by either a pharmacy claim for diabetes medication or a diagnostic code for diabetes from the International Classification of Disease Coding Manual, 9th edition (ICD-9) from medical visit in an inpatient or outpatient setting. Participants completed a computer assisted telephone interview between April 2006 and June 2007.

Variables

Coping in response to unfair treatment was assessed in response to the following questions from the Experience of Discrimination (EOD) Questionnaire developed by Krieger, et al.⁹: “If you feel you have been treated unfairly, do you usually (1) Accept it as a fact of life? (2) Try to do something about it?”, and “And if you have been treated unfairly, do you usually (1) Talk to other people about it (2) Keep it to yourself?” Participants were classified as active coping if their response to unfair treatment was either “Try to do something about it” or “Talk to other people about it.” Participants who responded to unfair treatment with both “Accept it as a fact of life” and “Keep it to yourself” were classified as passive coping. The classification of coping into active and passive categories has been validated in numerous investigative and empiric studies spanning multiple conditions and patient populations.^{10,11} This classification schema has also been validated by a study of elderly African Americans with diabetes in which active versus passive coping style was used as a predictor of overall health.¹²

Understanding of diabetes self-care was assessed using the Diabetes Care Profile Understanding (DCP-U) Subscale developed by the Michigan Diabetes Research and Training Center at the University of Michigan.¹³ The scale consists of 12 items and assesses understanding of (1) overall diabetes care, (2) coping with stress, (3) diet for blood sugar control, (4) the role of exercise in diabetes care, (5) medications, (6) how to use the results of blood sugar monitoring, (7) how diet, exercise, and medicines affect blood sugar levels, (8) prevention and treatment of high blood sugar, (9) prevention and treatment of low blood sugar, (10) prevention of long-term complications of diabetes, (11) foot care, and (12) benefits of improving blood sugar control. Respondents were asked to rate how well they understand each of the 12 items using a 5-point Likert scale. DCP-U scores were calculated for those respondents who completed at least 6 of the 12 items as recommended by the developers of the scale and supported in subsequent validation studies.^{13,14} DCP-U scores for which fewer than 6 items were recorded were considered incomplete and eliminated from the study. Scores were then rescaled to range from 0 to 100. Fitzgerald et al.¹⁴ found that the DCP-U had high test-retest reliability in both African Americans and whites with Cronbach's alphas of 0.95 and 0.93 respectively.

Other covariates included in the analysis were respondent age, gender, race/ethnicity, education level, diabetic complications, and other comorbidities. Gender, race/ethnicity, and education level were from self-report. Information on participant age, diabetic complications, and comorbidities was obtained from administrative data from the Medicare managed care organization. Diabetic complications included diabetic retinopathy, nephropathy, and neuropathy and were identified through Current Procedural Terminology (CPT) code monitoring and physician identification from 2002 to 2003. Comorbidities were assessed using inpatient and outpatient ICD-9 codes, and each participant was assigned a comorbidity index score using the Romano modification of the Charlson Comorbidity Index

(CCI).¹⁵ The CCI includes a list of 17 clinically significant comorbid medical conditions. Each condition is assigned a weight of 1, 2, 3, or 6 in accordance with increased adjusted relative risk. The weighted values are added for each participant to yield a CCI score, an indicator of mortality.¹⁶ Since diabetic microvascular complications were analyzed separately, these complications were removed from the overall modified CCI. In addition to providing information on mortality, the CCI has been found to predict length of hospital stay and post-operative complications.¹⁷

Analysis

Patient characteristics were compared by coping style (active versus passive) using the chi-square test for categorical variables and one-way analysis of variance for continuous variables. Based on the conceptual model, interactions between the main outcome of diabetes understanding (DCP-U score), race/ethnicity, and coping styles were anticipated. Linear regression was used to model the effect of race and coping style on DCP-U scores adjusted for age, gender, education, number of diabetic complications, and Charlson comorbidity score. Fully adjusted predicted mean DCP-U scores were then presented graphically. Multiple comparisons were accounted for using the conservative Bonferroni correction. All statistical calculations were performed using STATA/SE 12.0 (College Station, TX).

Regression assumptions were tested by graphically and statistically examining the residual distribution. Finding important heteroskedasticity, robust standard errors were used. Based on studentized residuals, Cook's Distance, and the leverage statistic, there was no evidence of extreme values influencing the main model. Similarly, no evidence of important multicollinearity based on variance inflation factors was noted.

Although the overall survey response rate was 66.4%, the possibility of non-response bias was investigated. Based on detailed administrative data available for all eligible participants, the probability of survey participation was calculated using logistic regression, and the main regression model was re-run weighting by the inverse probability of survey participation. No important differences between the main and weighted models were found, suggesting the absence of non-response bias.

Results

Of 1,420 participants, the mean age was 73 years, 46% were African American, and 63% were female. Most respondents (77%) exhibited active coping in response to unfair treatment. Overall mean DCP-U scores were significantly higher among active coping participants than passive coping participants (67.2, 60.7; $p < 0.001$). Active coping participants were younger, had greater levels of education, and had an overall lower level of comorbidity than passive coping participants. There was no significant association of gender, race, or number of diabetic microvascular complications with coping style (Table 1).

Table 2 presents unadjusted and adjusted comparisons of DCP-U scores by race-coping category. Passive coping was associated with a greater decline in DCP-U scores for African Americans compared to whites. Greater educational attainment and more microvascular diabetic complications were associated with higher DCP-U scores. Figure 1 presents predicted DCP-U scores by coping status and race/ethnicity obtained from the multivariable model. These scores are adjusted for all covariates listed in Table 2. Adjusted mean DCP-U scores (95% CI) for African Americans with passive and active coping were 54.0 (50.6, 57.4) and 65.2 (63.4, 67.0), difference 11.2 (7.4, 15.0). Corresponding scores for whites with passive and active coping were 65.9 (63.0, 68.9) and 68.9 (67.3, 70.4), difference 2.9 (-0.4, 6.3).

Discussion

The purpose of this study was to explore the association between coping style in response to unfair treatment and understanding of diabetes self-care in a large population of elderly African Americans and whites in the Southeast US. Overall, we found that those who responded to unfair treatment with active coping strategies demonstrated a better overall understanding of diabetes self-care.

Passive coping strategies therefore may be a previously unidentified barrier to diabetes self-management. This barrier was only statistically significant for African Americans in this study. These findings are supported by other studies involving the relationship between coping styles and overall health in the African-American community. For example, Moody-Ayers et al.¹² found that passive coping in response to perceived societal racism among 42 older African Americans with Type 2 diabetes was associated with fair/poor self-rated health, lower income, and being female. Another qualitative study by Wagner et al.¹⁸ of 28 African-American women with Type 2 diabetes who participated in a series of focus groups documented that maladaptive coping strategies in response to exposure to racism led to overeating and less healthy food choices. Participants in the study also expressed concern about negative consequences such as retaliation and personal safety as reasons for not employing active coping strategies. Brondolo et al.¹⁹ in their systematic review of coping with racism cited several studies documenting an association with passive coping and poorer health outcomes. They also noted that active coping strategies may also have unintended side effects such as inducing or aggravating interpersonal conflict, and that additional research is warranted to understand the effectiveness of various coping responses and their association with health status.

Limited understanding of diabetes self-care may also be rooted in medical mistrust, which has been shown to be more prevalent among African-American patients.^{12,20,21} Patients who expect and/or have experienced unfair treatment during medical encounters and who adopt a more passive coping style may be less inclined to follow medical advice or engage in efforts to learn about their medical conditions. Research has also suggested that African-Americans with diabetes report that they are less likely to participate in shared decision-making with their physicians,²² which may also be a contributing factor to lack of knowledge about diabetes care, especially among those who adopt a more passive coping style.

A handful of studies have sought to examine healthy coping generally as part of diabetes self-management interventions. The literature suggests that interventions that teach coping and problem-solving skills yield improvements in quality of life and may also impact metabolic control, though the findings on this latter outcome are mixed.²³ Some of our current knowledge is based on studies with less rigorous experimental design or studies that use non-comparable comparison groups. Before more definitive conclusions may be reached, a larger body of rigorous work is needed linking coping interventions to measurable changes in health for patients with diabetes. Additional studies that examine patients' coping styles in response to unfair treatment specifically are also warranted. In addition, the current literature is remarkably silent on how to tailor coping interventions to specific populations, such as cultural groups. In this study, the finding that coping style matters most for African-American patients is particularly relevant to this last observation. This finding suggests that future work to develop tailored coping interventions could lead to an important set of tools for reducing health disparities.

The results of this study should be considered with specific limitations in mind. First, the cross-sectional design of this study cannot allow one to determine whether passive coping causes lower understanding of diabetes self-care. Determining the exact reasons for this

association and possible causation would require a more robust study design. Second, African-American and white participants were recruited from a Medicare managed care plan in the Southeast, which limits the generalizability of these findings to other regions, ages, or race groups. Third, data on coping style, understanding of diabetes self-care, and other covariates were obtained by self-report. Although this method of data collection may result in recall or social desirability bias, it was the most feasible method of data collection for this large number of community-dwelling participants. Finally, no clinical or physiological outcome measures were collected in this study, an important consideration in future analyses. Despite these limitations, this analysis involved a large dataset (n=1,420), multiple race groups, and used standardized methods to capture data on a large number of variables.

In summary, the findings of this study suggest that passive coping style in response to unfair treatment is associated with lower overall understanding of diabetes self-care in a population of elderly African-American patients. These findings stress the importance of assessing coping styles in designing appropriate interventions for diabetes management. Future research on coping styles may provide new insights into reducing diabetes disparities among racial/ethnic minorities.

Implications for Practice

The findings of this study contribute to a growing body of literature emphasizing the important relationship between coping style and patients' understanding of and ability to adequately perform diabetes self-care. Although various methods have been devised to assess coping style in the clinic setting, to date there are no best practice guidelines that may be used to guide providers in this area.^{7,24} Kent et al.⁷ suggest that providers must first work to foster awareness of the importance of coping style in caring for the diabetic patient and then engage the patient in an open dialogue regarding his/her coping style, taking into account potential differences in cultural norms and varied interpretations of active and passive coping styles. More regimented instruments that address coping style, such as the Behavior Score Instrument developed by the American Association of Diabetes Educators, are currently being evaluated and may standardize the approach to coping assessments moving forward.^{7,24}

After an initial evaluation of the patient's coping style, the provider may then tailor patient education and goals to the patient's coping style with an emphasis on behavior modification strategies. By working to foster healthy coping strategies, particularly among individuals who employ a passive coping style, improvements in patient understanding of and ability to perform critical self-care behaviors may be achieved. The results of this study have demonstrated a particular disparity among African American elders who utilize passive coping styles. Therefore, this group may experience an added benefit from a more focused assessment of coping style and the use of culturally sensitive behavior modification strategies to promote healthy coping as a fundamental element of diabetes self-care.

Acknowledgments

M.D. researched data and wrote the manuscript. Y.C. contributed reviewed/edited manuscript J.H. reviewed/edited manuscript. R.M. reviewed/edited manuscript. C.C. reviewed/edited the manuscript and reran and verified all analyses. J.A reviewed/edited the manuscript. Michelle Dyke had full access to data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. This study was presented as an abstract at Society of Behavioral Medicine's 32nd Annual Meeting and Scientific Sessions.

References

1. Centers for Disease Control and Prevention. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; Atlanta, GA: 2011.
2. Koro CE, Bowlin SJ, Bourgeois N, Fedder DO. Glycemic control from 1988 to 2000 among U.S. adults diagnosed with type 2 diabetes: a preliminary report. *Diabetes Care*. 2004; 27(1):17–20. [PubMed: 14693960]
3. Nam S, Chesla C, Stotts NA, Kroon L, Janson SL. Barriers to diabetes management: patient and provider factors. *Diabetes Res Clin Pract*. 2011; 93:1–9. [PubMed: 21382643]
4. Heisler M, Bouknight RR, Hayward RA, Smith DM, Kerr EA. The relative importance of physician communication, participatory decision making, and patient understanding in diabetes self-management. *J Gen Intern Med*. 2002; 17(4):243–52. [PubMed: 11972720]
5. Piette JD, Kerr EA. The impact of comorbid chronic conditions on diabetes care. *Diabetes Care*. 2006; 29(3):725–31. [PubMed: 16505540]
6. Krieger N. Embodying inequality: a review of concepts, measures, and methods for studying health consequences of discrimination. *Int J Health Serv*. 1999; 29(2):295–352. [PubMed: 10379455]
7. Kent D, Haas L, Randal D, Lin E, Thorpe CT, Boren SA, et al. Healthy coping: issues and implications in diabetes education and care. *Popul Health Manag*. 2010; 13(5):227–233. [PubMed: 20879903]
8. Halanych JH, Safford MM, Keys WC, et al. Burden of comorbid medical conditions and quality of diabetes care. *Diabetes Care*. 2007; 30(12):2999–3004. [PubMed: 17717287]
9. Krieger N, Smith K, Naishadham D, Hartman C, Barbeau EM. Experiences of discrimination: validity and reliability of a self-report measure for population health research on racism and health. *Soc Sci Med*. 2005; 61(7):1576–96. [PubMed: 16005789]
10. Brown GK, Nicassio PM. Development of a questionnaire for the assessment of active and passive coping strategies in chronic pain patients. *Pain*. 1987; 31(1):53–64. [PubMed: 3696743]
11. Finset A, Andersson S. Coping strategies in patients with acquired brain injury: relationships between coping, apathy, depression and lesion location. *Brain Inj*. 2000; 14(10):887–905. [PubMed: 11076135]
12. Moody-Ayers SY, Stewart AL, Covinsky KE, Inouye SK. Prevalence and correlates of perceived societal racism in older African-American adults with type 2 diabetes mellitus. *J Am Geriatr Soc*. 2005; 53(12):2202–8. [PubMed: 16398910]
13. Fitzgerald JT, Davis WK, Connell CM, Hess GE, Funnell MM, Hiss RG. Development and validation of the Diabetes Care Profile. *Eval Health Prof*. Jun; 1996 19(2):208–230. [PubMed: 10186911]
14. Fitzgerald JT, Anderson RM, Gruppen LD, et al. The reliability of the Diabetes Care Profile for African Americans. *Eval Health Prof*. 1998; 21(1):52–65. [PubMed: 10183339]
15. Romano PS, Roos LL, Jollis JG. Adapting a clinical comorbidity index for use with ICD-9-CM administrative data: differing perspectives. *J Clin Epidemiol*. 1993; 46(10):1075–9. discussion 1081–90. [PubMed: 8410092]
16. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis*. 1987; 40(5):373–83. [PubMed: 3558716]
17. Deyo RA, Cherkin DC, Ciol MA. Adapting a clinical comorbidity index for use with ICD-9-CM administrative databases. *J Clin Epidemiol*. 1992; 45(6):613–9. [PubMed: 1607900]
18. Wagner JA, Osborn CY, Mendenhall EA, Budris LM, Belay S, Tennen A. Beliefs about racism and health among african american women with diabetes: a qualitative study. *J Natl Med Assoc*. 2011; 103(3):224–232. [PubMed: 21528110]
19. Brondolo E, ver Halen NB, Pencille M, Beatty D, Contrada RJ. Coping with racism: a selective review of the literature and a theoretical and methodological critique. *J Behav Med*. 2009; 32:64–88. [PubMed: 19127420]
20. Boulware LE, Cooper LA, et al. Race and trust in the health care system. *Am J Public Health*. 2003; 118:358–365.

21. Kennedy BR, Mathis CC, Woods AK. African Americans and their distrust of the healthcare system: healthcare for diverse populations. *J Cult Divers*. 2007; 14(2):56–60. [PubMed: 19175244]
22. Peek ME, Odoms-Young A, Quinn MT, Wilson SC, et al. Race and shared decision-making: perspectives of African-Americans with diabetes. *Soc Sci Med*. 2010:1–9. [PubMed: 20409625]
23. Fisher EB, Thorpe CT, DeVellis BE, DeVellis BF. Healthy coping, negative emotions, and diabetes management: a systematic review and appraisal. *Diabetes Educ*. 2007; 33:1080–1103. [PubMed: 18057276]
24. American Association of Diabetes Educators. Addressing the Need for an Instrument to Measure Behavior Change in Diabetes Self Management Education.. White Papers. Jun. 2011 <http://www.diabeteseducator.org/export/sites/aade/_resources/pdf/research/Behavior_Score_Document_White_Paper_2011.pdf>

Figure 1.
 Diabetes Self Care Understanding for 1,420 African Americans and Whites, Southeastern Medicare Managed Care, 2006-7

TABLE 1

Characteristics of 1,420 African Americans and Whites with Diabetes Mellitus Enrolled in Medicare Managed Care in the Southeast by Coping Style^a, 2006-2007

	Coping Style		P-value ^b
	Passive (n=321)	Active (n=1,099)	
	Mean (SD) or No. (%)	Mean (SD) or No. (%)	
Age, y	74.3 (5.3)	72.5 (5.1)	<0.001
Race/ethnicity			
African American	141 (21.8)	506 (78.2)	0.503
White	180 (23.3)	593 (76.7)	
Sex			
Female	207 (22.7)	706 (77.3)	0.936
Male	114 (22.5)	393 (77.7)	
Education			
Less than High School	180 (28.9)	444 (71.2)	<0.001
Completed High School	93 (20.2)	368 (79.8)	
More than High School	48 (14.0)	287 (85.7)	
No. Diabetic Complications ^c			
0	207 (22.7)	704 (77.3)	0.841
1	88 (21.7)	317 (78.3)	
2 or 3	25 (24.3)	780 (75.7)	
Comorbidity Score ^d	1.6 (1.9)	1.4 (1.7)	0.018
DCP-U Score ^{e,f}	60.7 (21.7)	67.2 (20.8)	<0.001
African American	54.1 (21.2)	65.2 (21.6)	<0.001
White	65.9 (20.8)	68.9 (19.9)	0.586

^aCoping styles were classified as active (talk about/act in response to unfair treatment) or passive (keep it to yourself).

^bP-values were obtained from oneway analysis of variance for continuous variables and chi-square test for categorical variables.

^cDiabetic complications were classified as diabetic retinopathy, nephropathy, and neuropathy (range: 0-3) and were obtained from Medicare Managed Care administrative data.

^dComorbidity scores were based on the Romano modification to the Charlson Comorbidity Index and excluded comorbidities related to diabetes and diabetic complications.

^eDCP-U-Michigan Diabetes Research and Training Center Diabetes Care Profile - Understanding Subscale (range: 0-100). Higher scores on DCP-U Subscale indicate higher understanding of diabetes self-care.

^fComparisons made by oneway analysis of variance with Bonferroni correction for sub-group comparisons.

TABLE 2

Associations of Coping Style^a and Covariates with Understanding of Diabetes Self-care^b among 1,420 African Americans and Whites with Diabetes Mellitus Enrolled in Medicare Managed Care in the Southeast, 2006-2007

	Unadjusted		Adjusted	
	Beta	(95% CI)	Beta	95% CI
Age, y	-0.67	(-0.88, -0.46)	-0.48	(-0.69, -0.26)
Race-Coping Interaction				
Passive Coping White			Reference Category	
Active Coping White	2.93	(-0.51, 6.36)	1.08	(-2.31, 4.47)
Passive Coping AA	-11.80	(-16.43, -7.18)	-9.70	(-14.23, -5.18)
Active Coping AA	-0.72	(-4.29, 2.85)	-1.83	(-5.35, 1.68)
Female	-0.09	(-2.17, 2.34)	1.42	(-0.76, 3.61)
Education				
Less than High School			Reference Category	
Completed High School	8.23	(5.79, 10.68)	6.39	(3.98, 8.81)
More than High School	12.82	(10.08, 15.56)	11.24	(8.53, 13.94)
No. Diabetic Complications ^c				
0			Reference Category	
1	2.68	(0.27, 5.09)	3.61	(1.31, 5.90)
2 or 3	7.39	(3.44, 11.33)	8.03	(4.21, 11.86)
Comorbidity Score ^d	-0.65	(-1.31, 0.18)	-0.41	(-1.05, 0.23)

AA=African American

^aCoping styles were classified as active (talk about/act in response to unfair treatment) or passive (keep it to yourself). Passive and active coping were coded as 0 and 1, respectively.

^bUnderstanding of diabetes self-care was assessed using the Michigan Diabetes Research and Training Center Diabetes Care Profile-Understanding Subscale (range: 0-100, SD: 21.0). Higher scores on DCP-U Subscale indicate higher understanding of diabetes self-care.

^cDiabetic complications were classified as diabetic retinopathy, nephropathy, and neuropathy (range: 0-3) and were obtained from Medicare Managed Care administrative data.

^dComorbidity scores were based on the Romano modification to the Charlson Comorbidity Index and excluded comorbidities related to diabetes and diabetic complications.