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Patient-Centered Culturally Sensitive Health Care: Model Testing and Refinement

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Abstract

Objectives—This article presents the results of an empirical test of a literature-based Patient-Centered Culturally Sensitive Health Care Model. The model was developed to explain and improve health care for ethnically diverse patients seen in community-based primary care clinics.

Design—Samples of predominantly low-income African American (N = 110) and non-Hispanic White American (N = 119) patients were recruited to complete questionnaires about their perceived health care provider cultural sensitivity and adherence to their provider's treatment regimen recommendations.

Main Outcome Measures—Patients completed written measures of their perceived provider cultural sensitivity, trust in provider, interpersonal control, satisfaction with their health care provider, physical stress and adherence to provider recommended treatment regimen variables (i.e., engagement in a health promoting lifestyle, and dietary and medication adherence).

Results—Two-group path analyses revealed significant links between patient-perceived provider cultural sensitivity and adherence to provider treatment regimen recommendations, with some differences in associations emerging by race/ethnicity.

Conclusion—The findings provide empirical support for the potential usefulness of the Patient-Centered Culturally Sensitive Health Care Model for explaining the linkage between the provision of patient-centered, culturally-sensitive health care, and the health behaviors and outcomes of patients who experience such care.

Keywords

patient-centered culturally sensitive health care; interpersonal control; health promoting lifestyle; patient satisfaction; treatment adherence

Patient-centered culturally sensitive health care has the following specific characteristics: (a) it emphasizes displaying patient-desired, modifiable provider and staff behaviors and attitudes, implementing health care center policies, and displaying physical health care

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center environment characteristics and policies that culturally diverse patients identify as indicators of respect for their culture and that enable these patients to feel comfortable with, trusting of, and respected by their health care providers and office staff; (b) it conceptualizes the patient-provider relationship as a partnership that emerges from patient centeredness; and (c) it is patient empowerment oriented (Tucker, Mirsu-Paun, van den Berg et al., 2007). This care is unique in that it is based on views of culturally diverse patients rather than the views of health care professionals (e.g., psychologists, physicians, and health care site administrators) as to the health care provider and staff behaviors and attitudes and the health care characteristics and policies that convey cultural sensitivity. Empowering patients to share their views concerning culturally sensitive health care is a manifestation of patient-centeredness. Health care providers and staff can be responsive to such views of patients through engaging in behaviors and attitudes and fostering clinic characteristics and policies identified as important by culturally diverse patients. This patient-provider partnership approach to health care can enable culturally diverse patients to experience patient-centered culturally sensitive health care. Some health researchers have called for such care in response to findings indicating that patient-centered culturally sensitive health is associated with positive health behaviors and outcomes for both minority and majority patients (Davis et al., 2005; Safran, 2004). Other health researchers have asserted that provider cultural sensitivity and cultural competence are negatively associated with race/ethnicity-related health disparities (Betancourt, Green, Carrillo, & Park, 2005).

Tucker, Herman, Ferdinand et al. (2007) developed a Patient-Centered Culturally Sensitive Health Care (PC-CSHC) Model to explain the link between patient-centered culturally sensitive health care and patients' treatment adherence, health promoting behaviors, and health outcomes. They argued that their model could guide the research and clinical activities of psychologists and other health professionals who are interested in promoting culturally sensitive health care with the ultimate goal of promoting health and reducing health disparities among culturally diverse patients. The model was developed from an extensive literature review and from an ongoing program of research that to date has included the following: (a) use of focus groups with culturally diverse adults to identify what constitutes patient-centered culturally sensitive health care from the perspectives of patients (Tucker, Herman, Pederson, Higley et al., 2003), (b) use of the data from the focus groups to develop the inventory for assessing patient-centered culturally sensitive health care that was used in the present study (Tucker, Mirsu-Paun, van den Berg, et al. (2007), and (c) research on various aspects of the model (Jones, Tucker, Herman, 2009; Tucker, Butler, & Loyuk, 2009; Richards, Tucker, Ferdinand, Brozyna & Shapiro, 2008). However, key tenets of the model have not been put to empirical testing. The purpose of the present study is to test the PC-CSHC Model and, if necessary, offer further empirically-based recommendations for refining it.

Prior Investigations of Culturally Sensitive Health Care

Culturally sensitive health care has been described as care that reflects "the ability to be appropriately responsive to the attitudes, feelings, or circumstances of groups of people that share a common and distinctive racial, national, religious, linguistic, or cultural heritage" (DHHS, OMH, 2001, p. 131). Culturally sensitive health care has also been described as care in which health care providers offer services in a manner that is relevant to patients' needs and expectations (Majumdar, Browne, Roberts, & Carpio, 2004). Studies have found that patients' satisfaction with their health care providers is positively associated with various physician behaviors such as taking time to provide patients with health care information and showing personal interest in patients (Ware, Davies-Avery, & Stewart, 1978), engaging in behaviors that show sensitivity and caring (Hallstrom & Elander, 200;

Pascoe, 1983), and showing empathy, warmth, genuineness, support, and respect in interactions with patients (Beach, Saha, & Cooper, 2006; DiMatteo, Hays, & Prince, 1986).

There is much agreement that level of cultural sensitivity in the health care that patients perceive experiencing positively influences their adherence to treatment and, ultimately, their health outcomes (Lukoschek, 2003; Rose, Kim, Dennison & Hill, 2000). It has also been asserted by some researchers that low adherence to recommended treatment behaviors among ethnically and racially diverse patients is to some degree due to limited levels of culture-related knowledge, skills, experience, and awareness demonstrated by their health care providers (Shapiro, Hollingshead, & Morrison, 2002). There is empirical support for the view that many health care providers lack adequate cultural sensitivity to effectively communicate with patients from minority groups. For example, it has been found that American Indians and Alaska Natives, Asian Americans, African Americans, Hispanics, low-income populations, and individuals without a high school diploma are more likely than non-Hispanic White Americans, individuals with middle and high income levels, and individuals who attended college, respectively, to report poor communication with their physicians (AHRQ, 2003). Additionally, it has been found that doctors were less likely to engage African American patients in conversation compared to non-Hispanic White American patients, and the tone of visits with African American patients was generally less friendly than with non-Hispanic White patients (Johnson, Roter, Powe, & Cooper, 2004).

There are a few studies that have empirically shown links between cultural sensitivity/competence and both improved health outcomes of racial ethnic minorities (Betancourt, et al., 2005; Thom & Tirado, 2006; U.S. DHHS, 2001) and improved treatment adherence (Salganicoff, Ranji, & Wyn, 2005). For example, research has shown that effective patient-provider communication, which is often influenced by the patient's and/or the provider's culture related language, is linked to patient satisfaction, medication adherence, and health outcomes (Betancourt et al., 2005; Stewart et al., 1999; Williams & Rucker, 2000). Additionally, in a study investigating language concordance between physicians and their patients as a factor in medication compliance among patients with asthma, it was found that patients in language discordant patient-provider dyads were more likely than patients in language concordant patient-provider dyads to (a) be medication nonadherent, (b) miss appointments, and (c) make emergency room visits (Manson, 1988).

There is some indication that perceived cultural sensitivity of health promoting interventions is associated with the effectiveness of these interventions. For example, culturally sensitive health promotion programs have been found to be effective when implemented with adults who have low levels of literacy (Winkleby, Howard-Pitney, & Albright, 1997) and working-class, multiethnic workers (Sorensen et al., 2005). Culturally sensitive health promotion programs have also been effective in helping women living in a low-income community quit smoking (O'Loughlin, Renaud, & Paradis, 1996).

Patient-Centered Culturally Sensitive Health Care (PC-CSHC) Model

Despite the promise of the studies described above, one important limitation is their lack of a comprehensive theory that specifies the mechanisms linking culturally sensitive health care or patient-centered culturally sensitive health care to important health behaviors (e.g., treatment adherence and health promoting behaviors) that impact health outcomes/statuses. The PC-CSHC model provides a needed conceptual framework for understanding and improving health care services for minority and low-income patients at-risk for a variety of medical problems (Davis, Schoenbaum, & Audet, 2005; Showstack, Rothman, & Hassmiller, 2003; Watson, 2005). The present study attempted to build on the current

literature by empirically testing this comprehensive model of cultural interventions aimed at health care providers and health care environments.

A basic premise of the PC-CSHC model is that training of medical patients and health care providers can promote patient-centered culturally sensitive health care. Providers and health care settings that are culturally sensitive are expected to influence views patients have of their providers' cultural sensitivity. In turn, patients' perceptions of having culturally sensitive providers lead to feelings of comfort with and trust in their providers, both of which enhance their satisfaction with care by their providers (Joffe, Manocchia, Weeks, & Cleary, 2003; Sorensen, Barbeau, Stoddard, et al., 2005) and their sense of interpersonal control in the health care process (Jahng, Martin, Golin, & Dimatteo, 2004). Patients' satisfaction with provider care and their perceived interpersonal control influence their level of physical stress when interacting with health care providers and staff (Brody, Miller, Lerman, Smith Lazardo, & Blum (1989), and all three of these variables influence patients' likelihood of following provider recommended treatment regimen which include engagement in a health promoting lifestyle (Auerbach, Clore, Kiesler et al., 2002; Baum, Garofalo, & Yali, 1999) and medication adherence and dietary adherence (DiPalo, 1997; Greenfield & Attkisson, 1989; Hall, Milburn, & Epstein, 1993; Strugatz, 1990). Finally, following recommended treatment regimens directly impacts health outcome variables (Engels, Gretebeck, Gretebeck, & Jimenez, 2005; Rimmer, Braunschweig, Siverman, et al., 2000).

Given that stress is commonly experienced by patients in the process of experiencing health care as evidenced by the "white coat hypertension" phenomenon, and given that African Americans are at risk for perceived or experienced racism related stress (Clark, Anderson, Clark, & Williams, 1999) from likely unintentional racial bias in the health care process (Shulman, 1999; Stewart, Napoles-Springer, & Perez-Stable, 1999), it is important to consider physical stress in the PC-CSHC Model. It is understandable how patients who experience mistrust of their health care providers, racial bias in health care received, unsatisfactory patient-provider interactions (e.g., interactions in which providers are rushing in order to see many patients) and/or who lack the perceived interpersonal control needed to discuss health care dissatisfaction with their providers may experience health care associated stress. Such stress as well as other health care circumstances (e.g., receiving negative test results) can impede patients' understanding of treatment recommendations and/or willingness to follow these recommendations, resulting in treatment nonadherence by these patients. Conversely, patients' satisfaction with their health care and perceived interpersonal control in interactions with their health care providers can contribute to patients experiencing lower stress, and all three of these experiences can promote the mental health needed to understand and follow recommended treatment regimens, including health promoting lifestyle behaviors and medication and diet regimens.

The present study provided an initial test of the PC-CSHC conceptual model using path analysis. Direct and indirect effects were expected to emerge in the test of this model. Specifically, we hypothesized that (a) the most proximal and direct impact of patient-perceived provider cultural sensitivity will be on patients' sense of trust in their provider, satisfaction with their provider's care provision, and their sense of interpersonal control, (b) the latter two variables will have indirect effects (through perceived levels of physical stress) on treatment regimen adherence indicators (e.g., engagement in a health promoting lifestyle, medication adherence, and dietary adherence) and (c) physical stress, satisfaction with provider's care provision, and sense of interpersonal control will also have direct effects on the treatment regimen adherence indicators. Given our interest in culture- and race-specific applications of the model, we also tested whether the model fit equally well for African American patients and non-Hispanic White American patients.

Method

Participants

This study occurred as a part of a larger federal grant-funded research program on patient-centered culturally sensitive health care. The present study involved two community-based primary care clinics located in northern central Florida. Both clinics served populations of primarily low-income patients. A total of 229 patients participated in this study. One hundred and ten of these patients self-identified as African American (25 men and 85 women) and 119 self-identified as non-Hispanic White American (39 men and 81 women). The sample for the African American and non-Hispanic White American patients in the present study ranged in age from 18-85 years and 20-89 years, with a mean age of 51 and 55, respectively. Of the 110 African American and 119 non-Hispanic White American participants, the majority earned a household income less than $20,001 (72% and 52%, respectively).

The inclusion criteria for patients in the study were: (a) being 18 years or older; (b) having obtained health care services at one of the two community-based primary health care clinics at least 3 times in the year prior to the study; (c) identifying as African American not of Hispanic origin; or White American not of Hispanic origin; (d) having high blood pressure, alone, or in combination with diagnosed diabetes, high cholesterol, or coronary artery disease for at least one year prior to the start of the study; (e) being able to communicate effectively with others verbally or in writing in his or her native language; and (f) giving witness-verified written consent to participate.

Procedure

The following two methods were used to recruit patients for the larger study: (a) a health care clinic office staff mailing method, and (b) an advertisement recruitment method. In the first of these methods, patients who met the participant inclusion criteria were identified by the health care clinic representative at each of the two community-based primary health care clinics participating in this study. These professionals mailed an invitation packet to each of the patients at their clinic who met the participation criteria. The invitation packet consisted of the following: (a) a cover letter that detailed the research purpose, participation instructions, and precautions taken to ensure patients' confidentiality, (b) two copies of an Informed Consent Form (ICF), (c) a Demographic Data Questionnaire (DDQ), (d) a payment release form, and (e) a stamped pre-addressed envelope for returning the signed ICF and the completed DDQ to the researchers.

In the advertisement recruitment method, two recruitment strategies were implemented. The first strategy involved recruiting patients via a televised commercial on a local television station. The commercial invited potential patient participants at the two participating community-based primary care clinics to call the Principal Investigator (PI) to request an invitation packet for the research study. The second strategy involved placing recruitment posters with attached contact information slips at the two community-based primary health care clinics - slips to be completed and dropped in an envelope attached to each poster. The completed contact information slips were periodically collected and mailed to the researchers by a volunteer staff member at each of the clinics. Researchers then mailed an invitation packet to each patient whose contact information slip indicated that she/he met the participant inclusion criteria. This invitation packet contained the same materials earlier described in the health care center office staff mailing method. Patients recruited who returned a signed ICF, a signed payment release form, and a completed DDQ were mailed an Assessment Battery (AB) consisting of instruments to assess the variables included in the PC-CSHC Model and a stamped pre-addressed envelope for returning the completed AB.

Patients who returned a completed AB were each mailed $20 within three weeks of receiving it. Data were collected for this study over a 1-year period.

The instruments in the AB were counterbalanced with regard to order. To ensure patient confidentiality, questionnaires were pre-coded and names matching codes were kept in a separate locked file from the coded questionnaire data in compliance with IRB regulations.

Instruments

The Assessment Battery (AB) consisted of the instruments described in this section. The AB for the African Americans and the AB for the White Americans differed in one way - the subscale used to assess perceived cultural sensitivity of providers' behaviors and attitudes were race-specific, as indicated by the names and descriptions of these subscales.

The Provider Behaviors and Attitudes subscale of the Tucker - Culturally Sensitive Health Care Inventory - African American Patient Form (T-CSHCI - AA) was used to assess African American patients' perceived cultural sensitivity of their providers' behaviors and attitudes. The T-CSHCI-AA is a 125-item scale that measures the level of self-reported patient-centered cultural sensitivity in one's health care center environment (including physical and policy aspects of the center) and in the behaviors and attitudes of one's health care provider and front desk office staff (Tucker, Mirsu-Paun, van den Berg et al., 2007). Prior research provided good evidence of temporal stability (over 5-months) and internal consistency for the Provider Behaviors and Attitudes subscale of the T-CSHCI - AA (Tucker et al., 2007). Ratings of the items in this subscale and in all subscales of the T-CSHCI - AA are made using a 4-point Likert scale where 4 = "Strongly Agree," to 1 = "Strongly Disagree." Scores for the Provider Behaviors and Attitudes subscale and for each subscale of the T-CSHCI are averaged to yield a mean score for that subscale. Higher scores are associated with higher self-reported levels of patient-perceived cultural sensitivity, whereas lower scores are associated with lower self-reported levels of patient-perceived cultural sensitivity. A sample item taken from the 63-item Provider Behaviors and Attitudes subscale of the T-CSHCI-AA is: "The person I see most often for my health care when I visit my clinic has training in working with African American patients."

The Provider Behaviors and Attitudes subscale of The Tucker - Culturally Sensitive Health Care Inventory - Caucasian American Patient Form (T-CSHCI-CA) was used by non-Hispanic White American patients to self-report their perceived level of cultural sensitivity in the behaviors and attitudes of their providers. The above description of the T-CSHCI-AA and its temporal reliability and internal consistency applies to the T-CSHCI-CA with the exception that there are 66 items on the Provider Behaviors and Attitudes subscale of the T-CSHCI-CA. A sample item from the later subscale is: "The person I see most often for my health care when I visit my clinic shows that he or she is familiar with me and my health."

Development of the items constituting the T-CSHCI-AA and the T-CSHCI-CA is described in detail in an earlier published study (Tucker et al., 2007). In sum this development involved three related studies. In the first study, patients from one of four community-based primary care centers were recruited to form 20 ethnicity and gender concordant focus groups. The focus groups were conducted to identify (a) the behaviors and attitudes of health care providers and of health care center front desk staff that enable these patient groups to feel comfortable with, trusting of, and respected by providers/staff, and (b) the physical characteristics and policies of health care centers that enable these patient groups to feel comfortable and a sense of belonging in these centers. The resulting focus group generated data were used to construct the Tucker Culturally Sensitive Health Care Inventory (T-CSHCI).

In the second study, 221 patients who did not participate in the first study were recruited from among 7 community-based primary care centers (37% African American and 43% Non-Hispanic White American). These patients completed a the T-CSHCI but with the instruction to (a) rate the personal importance of the listed health care provider and staff behaviors and health care center physical characteristics and policies in the health care they experience, and (b) rate these items using a rating scale where 1 = *not at all important* through 5 = *extremely important*. Items that received a mean rating of 1 or 2 were eliminated from the scale. For each subscale across racial/ethnic groups, at most 13% of the original items were eliminated.

In the third study, the test-retest, split-half, and internal consistency reliabilities were determined using a new group of 179 patients recruited from two community-based health care centers not involved in either of the first two studies (49% African American and 51% and Non-Hispanic White American. Six-month test-retest reliabilities for the Provider Behaviors and Attitudes subscale (AA and CA) ranged from .97 to .99, split half reliabilities ranged from .90 to .97, and the inter-item reliabilities ranged from .98 to .99.

The *Trust in Physician Scale* (TPS) is an 11-item scale that measures three dimensions of trust in relation to a physician: physician dependability, confidence in the physician's knowledge and skills, and confidentiality and reliability of information received from the physician (Anderson & Dedrick, 1990). The scale has adequate reliability: Cronbach's coefficients alpha have ranged from .85 to .90, one-month test-retest reliability was strong (r = .77) (Anderson & Dedrick, 1990; Thom, Ribisl, Stewart, Luke, & The Stanford Trust Study Physicians, 1999). Ratings on the TPS are made using a 5-point Likert-type scale, where 1 = “Strongly Disagree,” to 5 = “Strongly Agree.” Scores for the TPS are obtained by calculating the sum of the item ratings. Higher scores on the TPS indicate higher levels of trust in one's physician. A sample item taken from the TPS is: “I trust my doctor so much that I always try to follow his/her advice.”

The *Interpersonal Control Subscale* (ICS) consists of 10-items from the 30-item *Spheres of Control Scale* by Paulhus (1983). This subscale was used to measure patients’ perceived interpersonal control in their interactions with others (e.g., physicians). The ICS is widely used and has been shown to have adequate internal consistency (ranging from 0.61 - 0.85) with a broad range of populations (Noor, 2002; Paulhus & Van Selst, 1990). Scores on the ICS have also shown to highly correlate with established measures of similar constructs including general and social self-efficacy and social competence (Paulhus & Van Selst, 1990). Items in each sphere were rated on a 7-point Likert-type scale where 1 = “Strongly Disagree” to 7 = “Strongly Agree.” Higher scores on the SCS represent more internal locus of control, while lower scores represent more external locus of control. A sample item from the ICS is: “I have no trouble making and keeping friends.”

The *Patient Satisfaction Questionnaire Short-Form* (PSQ-18) is an 18-item short-form version of the 50-item Patient Satisfaction Questionnaire III (PSQ-III). The PSQ-18 measures patient satisfaction over seven dimensions: General Satisfaction, Technical Quality, Interpersonal Manner, Communication, Financial Aspect, Time Spent with Doctor, and Accessibility and Convenience. The PSQ-18 has been reported to have excellent internal consistency that exceeded .90 among samples that included various racial groups (Marshall & Hays, 1994). All items on the scale are rated on a 5-point Likert-type scale where 1 = “Strongly Agree” to 5 = “Strongly Disagree.” There is no total score. However, the 10 items in the technical quality, interpersonal manner, communication, and time with doctor subscales can be averaged to produce a measure of satisfaction with physician care (Marshall & Hays, 1994). The Satisfaction with Physician Care score of the PSQ-18 was used in the present study. Higher scores indicate greater patient satisfaction with provider

care received. A sample item from the PSQ-18 is: “I'm very satisfied with the medical care I receive.”

The *Strain Questionnaire* (SQ) is a 48-item scale that measures overall health-related stress and the three subscales of this overall stress—behavioral stress, cognitive stress, and physical stress. Given that physical stress is manifested in more easily recognizable symptoms (e.g., headaches) than is the case with behavioral stress and cognitive stress, the Physical Stress subscale of the SQ was utilized (Lefebvre & Sandford, 1985) in the present study. The SQ has been reported to have good internal consistency (alphas = .71-.94) and high concurrent validity (Main et al., 1987). Item responses on the SQ range from 1 = “Not at all (0 days) to 5 = “Everyday (7 days).” The SQ is scored by summing the ratings of the items to yield a total score or to yield a subscale score. A score for each subscale of the SQ is determined by summing the ratings of the items in that subscale. Lower scores are associated with lower levels of stress, whereas higher scores are associated with higher levels of stress. A sample item on the SQ Physical subscale is: “How often in the past week have you experienced or felt your heart racing?”

The *Health Promoting Lifestyle Profile II* (HPLP) is a 52-item scale that measures overall level of engagement in a health promoting lifestyle as indicated by self-initiated actions/ behaviors that serve to maintain or enhance one's level of wellness, self-actualization, and fulfillment (Walker, Sechrist, & Pender, 1987). The HPLP is comprised of six subscales (self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management). The reported test-retest reliability for the HPL II and its subscales ranged from .81 to .91 (Walker et al., 1987). The Cronbach coefficient alpha for the total HPLP scale is 0.94, and the Chronbach coefficient alphas for its subscales range from 0.79 to 0.87 (Walker, Sechrist, & Pender, 1995). Ratings on the HPL II are made using a 4-point Likert-type scale where 1 = “Never,” to 4 = “Routinely.” Overall scores for the HPLP and its subscales are obtained by calculating the mean score for each. Higher scores on the HPLP indicate higher levels of engagement in a health promoting lifestyle. The following is a sample item on the HPLP: “Read labels to identify nutrients, fats, and sodium content in packaged food.”

The *Morisky Medication Adherence (MMA) Scale* measures level of adherence in taking medication as recommended by a physician or other health care provider. The MMA scale was first designed as a 5-item scale to measure medication-taking behavior in outpatients being treated for high blood pressure (Green, Levine, & Deeds, 1975), but it was later revised to be the 4-item measure used in the present study (Morisky, Green, & Levine, 1986). The 4-item MMA scale is scored by summing its items. Higher scores represent a higher level of medication adherence. The MMA Scale has been found to have an internal consistency of 0.61, and the scale is easily implemented, maintains reliability, and has also demonstrated concurrent and predictive validity with regard to blood pressure control (Ogedegbe, Schoenthaler, Richardson et al., 2007; Shea, Misra, Ehrlich, Field, & Francis, 1992). The following is a sample item on the MMA: “Do you ever forget to take your medicine?”

The *Dietary Adherence Scale* (DAS), which was developed by Williams (1979), is a 38-item scale used to measure adherence to the specific common dietary recommendations of an anti-hypertensive medical regimen (i.e., low intake of fat, sodium, and alcohol and high intake of potassium). The DAS was chosen rather than another dietary adherence scale because unlike other inventories, the DAS (a) includes specific items that are particularly relevant to African Americans and/or others with low family incomes – items such as adding salt to food at the dinner table, eating vegetables with meals, eating foods high in fat, and eating at fast-food restaurants, (b) assesses follow-through on multiple specific dietary

recommendations such as those typically given to patients with hypertension, and (c) has adequate alternate-form reliability as well as content reliability (Williams, 1979). Items on the DAS are answered on a 5-point Likert-type scale where 1 = “Almost Always” to 5 = “Almost Never.” Scores range from 13 to 65, with higher scores indicating better dietary adherence. The following is a sample item taken from the DAS: “Do you think you eat a well balanced diet that gives you only the calories you need each day?”

Overview of the Data Analyses

We conducted a two-group path analysis to test the model depicted in Figure 1. This path analysis was used to evaluate the system of direct and indirect effects. Full structural equation modeling (SEM) could not be conducted due to the available sample size. Model comparison analyses were conducted using the AMOS 16.0 program (Small Waters Corp., Chicago, IL). We estimated a fully recursive path model across the two cultural groups (African Americans and non-Hispanic White Americans) using the proposed model by constraining all path coefficients (parameters) to be equal across both groups. We then re-examined the path model, allowing all coefficients to be freely estimated across groups. A nested model test was conducted to compare whether this equality constraint on regression estimates significantly degraded model fit; chi-square deviance between models was used to inform this evaluation. Akaike's Information Criterion (AIC) was also examined, using the “smaller is better” rule. As a path analysis, other SEM fit statistics were not examined, since structural parameters are entirely fixed in a path analysis.

The invariance of the path models across groups was tested using full-information maximum likelihood (FIML) estimation. Missing data here tended to be the result of idiosyncratic testing sessions (e.g., a few participants had to leave before completing the battery) or skipped items. In the current study, only six participants (2.6% of the sample) had missing data on one or more of the variables included in the path analyses for this study. These participants were simply eliminated from the path analyses.

Significance tests were conducted using bootstrapped estimates of standard errors for direct, indirect, and total effects. Five thousand bootstrapped samples were selected. In addition to evaluating the significance of each effect, we also examined group differences in effect strength. To do this, 95% confidence intervals were constructed using the standard errors in each group, and the effects from each group were examined for overlap with the confidence interval of the other group.

Results

Descriptive Statistics

Prior to the study's main analyses, an exploratory data analysis was conducted to inspect the data for univariate normality, multivariate normality, outliers, multicollinearity, and relative variances (Kline, 2005). Data were not significantly skewed and assumptions of normality were met. Intercorrelations among the scores on the investigated variables as well as means, standard deviations, and scale properties for these variables, separated by ethnicity, appear in Table 1. The intercorrelations among the scores for the African Americans and for the non-Hispanic Whites were at least moderate in effect size in light of the fact that all tests were conducted with $p < .05$. The average scores are noteworthy because they reveal that patients’ levels of all of the investigated patient health care perception variables (including provider cultural sensitivity, trust in provider, interpersonal control, and patient satisfaction with provider care variables) and treatment regimen adherence indicators (including engagement in a health promoting lifestyle, medication adherence, and dietary adherence variables) are less than optimal for the low-income African Americans and non-Hispanic

White Americans in this study. Inter-item reliabilities were generally acceptable for research purposes, although the diet adherence score for African Americans and medication adherence for non-Hispanic Whites raised some concerns about internal consistency and measurement error with those indicators.

Testing the Model

The model allowing differences between African American and White American participants in regression estimates fit significantly better than that which constrained parameter estimates to equality across groups: $\chi^2_{diff}(23) = 65.01$, $p < 0.001$, $AIC_{diff} = 19.01$. Table 2 shows the resulting standardized direct regression paths, indirect effects, and total effects for each racial/ethnic group. In general, this unconstrained model supported the study's hypothesis, which held that patient health perception variables (i.e., patient perceived cultural sensitivity of their provider, patient trust in provider, patient interpersonal control, patient satisfaction with provider care) are linked to stress and important treatment regimen adherence variables (i.e., engagement in a health promoting lifestyle, medication adherence and dietary adherence) among African Americans and non-Hispanic White Americans. This unconstrained model also indicates that the hypothesized paths differ by cultural/racial group.

Looking first at the *direct* effects, provider cultural sensitivity had significant positive effects on trust in provider and satisfaction with provider care in both racial/cultural groups, but the effect on trust was significantly larger ($p < .05$) for Whites, while the effect on provider care satisfaction was significantly larger ($p < .05$) for African Americans. Provider cultural sensitivity also had a significant positive direct effect on dietary adherence; however, this effect was significant only for African Americans and was significantly larger ($p < .05$) than in the White Americans. Trust in provider had significant direct effects on provider care satisfaction in both racial/cultural groups, although the effect was significantly larger ($p < .05$) for White Americans. For White Americans, sense of control had a significant negative effect on perceived physical stress, whereas for African Americans, it had a significant positive effect on dietary adherence. Sense of control had a significant positive direct effect on health promoting lifestyle in both groups, although the effect was significantly larger ($p < .05$) for African Americans. Physical stress had a negative effect on medication adherence but this was true for African Americans only. No direct effects (or group differences in direct effect) were observed when care satisfaction was examined as a predictor.

Turning to indirect effects, provider cultural sensitivity also had a significant positive indirect effect on care satisfaction in both groups, although the effect was significantly larger for White Americans than African Americans ($p < .05$). Variance explained in each of the mediating and endogenous variables was as follows (African Americans/White Americans): Trust in provider, $R^2 = 0.30/0.70$, care satisfaction, $R^2 = 0.61/0.76$, control, $R^2 = 0.03/0.04$, physical stress, $R^2 = 0.01/0.19$, health promoting lifestyle, $R^2 = 0.33/0.27$, medication adherence, $R^2 = 0.08/0.09$, dietary adherence, $R^2 = 0.13/0.02$.

Discussion

The present study provided an empirical evaluation of a literature-based Patient-Centered Culturally Sensitive Health Care (PC-CSHC) Model. This model was developed to explain and thus identify ways to improve adherence to provider treatment recommendations (engagement in a health promoting lifestyle, dietary adherence, and medication adherence) and health care outcomes among culturally diverse patients. Testing of the PC-CSHC model was based on data derived from a participant sample of predominantly low-income adult

African Americans and non-Hispanic White Americans who utilized one of two community-based primary care clinics.

Testing of the PC-CSHC model involved using path analyses to examine the links between the following variables: (a) patient-perceived provider cultural sensitivity (i.e., patient-perceived cultural sensitivity of their health care providers' behaviors and attitudes), (b) patient-perceived trust in their provider, satisfaction with care by their provider, and interpersonal control in interactions with others, (c) self-reported physical stress, and (d) self-reported adherence to provider recommended treatment regimen variables (engagement in a health promoting lifestyle, medication adherence, and dietary adherence).

The path model analyses revealed significant links between patient-perceived provider cultural sensitivity and patient adherence to provider recommended treatment regimen variables, with some differences in associations emerging by race/ethnicity. Overall, the findings provide support for the provision of patient-centered culturally-sensitive health care and provide some empirical support for the PC-CSHC model - a literature-based model that offers an explanation of the health-related effects of such care. Prior to this study there was little empirical evidence of links between provider cultural sensitivity and provider recommended treatment regimen behaviors, such as engagement in a health promoting lifestyle, dietary adherence, and medication adherence (Betancourt, 2005; Goode, Dunne, & Bronheim, 2006; Smedley et al., 2003).

Although the general tenets of the PC-CSHC model fit for both the African American patients and the non-Hispanic White American patients in the present study, there were some notable model differences. Among both racial/ethnic groups, provider cultural sensitivity had direct effects on important indicators of confidence and comfort with provider (i.e., trust and satisfaction with care), though the effect on care satisfaction was stronger for the African American patients whereas the effect on trust was stronger for the White American patients. For African American but not White American patients, provider cultural sensitivity also had a direct effect on an important treatment regimen variable, dietary adherence. Trust in provider was linked to care satisfaction for both racial groups, but the size of that association for White American patients was significantly larger than observed with the African American patients. Sense of interpersonal control was also an important predictor of health promoting lifestyle for both groups, with a stronger tie between those variables emerging for African American than White American patients. Sense of control also was significantly associated with dietary adherence for the African American but not White American patients. Indeed, interpersonal control emerged as a key component of the model, providing some empirical support for the increasing interest in empowering patients and communities to have the option of actively participating in their own health promotion and health care (Agency for Healthcare Research and Quality, 2009).

Tests of indirect effects revealed that, not surprisingly, for both racial groups satisfaction with care was likely an indirect function of the effect that provider cultural sensitivity had on trust in provider. In essence, both racial groups were likely to have greater trust in providers they deemed to be culturally-sensitive. In turn, that trust translated into greater likelihood of being satisfied with the care received. In addition, that indirect path from sensitivity through trust to care satisfaction was significantly stronger for the White American patients than it was for the African American patients. The model did not account for medication adherence in either group.

The above identified race differences in the model fit findings suggest the importance of evaluating culturally sensitive health care models separately for patients who differ with regard to race/ethnicity, as is characteristic of the culturally sensitive Difference Model

research approach (Oyemade & Rosser, 1980). This research approach is anchored in the views that (a) it is important to separately study groups that differ on major variables such as race/ethnicity and socioeconomic status as there is no adequate statistical controls for these differences, and (b) simply comparing such groups on variables of interest (as is done in the traditional Deficit Model research approach) only serves to reinforce negative stereotypes of ethnic minority groups rather than promote an understanding of the within-group factors that influence the behavioral and psychosocial characteristics of traditionally under-studied ethnic minorities and groups with low incomes. Such an understanding was promoted in the present study by using race-specific assessments of provider cultural sensitivity and testing the PC-CSHC model with the participating patients by race and across race.

Though important, the findings in this study should be interpreted with caution given the limitations of this single study. These limitations include the cross-sectional nature of the data, the use of self-report data, and some lower-than-desired internal consistencies that may have attenuated parameter estimates. Though efforts were made in the present study to obtain objective health outcome data (systolic and diastolic BP, LDL and HDL cholesterol levels, and blood glucose levels) from participants' medical records to include in the test of the PC-CSHC model, these data were only available for 30-40% of patients during the period of the present study and were often not readable.

Another limitation was the focus on only two racial groups. African American and White American patients were studied for several reasons. Both of these groups have group-specific aspects of their culture, have evidenced unsatisfactory levels of treatment nonadherence, and have unacceptable levels of preventable diseases such as obesity, hypertension, and type 2 diabetes. Given that these and other diseases are more prevalent among African Americans than among White Americans, it was important to determine if the linkages between culturally sensitive health care and health behaviors/outcomes differ between these racial groups and thus whether different interventions may be needed to promote health behaviors and health outcomes among these groups. However, because the prevalence of chronic diseases such as obesity and hypertension are also higher among Hispanic/Latinos than among White Americans, Hispanic/Latinos samples should be included in future extensions of the current research.

A major limitation of this study, however, is the lack of evidence for the construct validity (e.g., convergent, divergent, or predictive validity) of the investigated variables. To date, such validity research has not been published. The findings in the present study of some relatively high correlations among the scores on the scales that measure cultural sensitivity, trust, and care satisfaction suggest that there may be some overlap among these scales/constructs. Such overlap requires acknowledging that the significant/meaningful paths found in the tested model reflect shared variance that may have several sources: true predictive relationships, overlapping construct variance, and overlapping method variance. This issue of shared variance among measures is not unique to our study; rather, it is endemic to the entire literature using subjective measures in psychology.

Another limitation of the present study is lack of evidence that the provider subscale of the Tucker - Culturally Sensitive Health Care Inventory - African American Patient Form (T-CSHCI - AA) and the provider subscale of the Tucker - Culturally Sensitive Health Care Inventory - Caucasian American Patient Form (T-CSHCI - CA) actually measure the same construct across the two races. Ideally, this evidence is obtained via a Confirmatory Factor Analysis measurement model using tests of measurement invariance across groups. Without such measurement invariance testing across the racial/ethnic groups in this study, the findings regarding racial/ethnic differences in the associations among the investigated constructs must be viewed with caution.

This needed measurement invariance testing and the needed earlier mentioned examination of the construct validity of the variables investigated in our path model did not occur because of an inadequate sample size. We as well as other researchers have not amassed large enough samples of hard-to-reach African Americans to conduct such measurement invariance and construct validity testing. However, future research to test the Patient-Centered Culturally Sensitive Health Care Model must have as a priority the inclusion of large enough samples to do this testing. Until this future research occurs, the results of the present study must be viewed with caution and serve primarily as an impetus for future similar research in which the limitations of the present study are addressed.

It is also important to note several major strengths of this study. First, the measures of provider cultural sensitivity (the T-CSHCI-AA and the T-CSHCI-CA) used in this study are race-specific. Second, this is the only known study with low income African American patients that has demonstrated a link (direct effect) between provider cultural sensitivity in health care delivery and patients' self-reported dietary adherence, and links (in terms of total direct and indirect effects) between provider cultural sensitivity and patients' engagement in a health promoting lifestyle. Such demonstrations are critical steps in justifying national efforts to promote the provision of patient-centered culturally sensitive health care to our nation's increasingly more culturally diverse patient populations. Third, the analyses used to test the PC-CSHC model were guided by the literature-based PC-CSHC model.

The findings of the present study in light of its limitations and strengths suggest that the PC-CSHC Model is potentially useful to health psychologists and thus warrants further model testing that addresses the limitations of the model testing reported in the present study. This future model testing should likely include testing a refined model that is responsive to the fact that although interpersonal control emerged as a strong predictor of health promoting behaviors, dietary adherence, and (less) physical stress, cultural sensitivity was not associated, either directly or indirectly, with interpersonal control. Such a refined model could include other predictors of interpersonal control and could address the possible moderating, rather than mediating, role of interpersonal control to account for the relationship between cultural sensitivity and health behavior. Perhaps the effects of cultural sensitivity on health outcomes are more pronounced among patients with higher levels of interpersonal control. Alternatively, effects of cultural sensitivity might be weakened for patients at relatively lower levels of interpersonal control.

Future research by health psychologists to test the PC-CSHC Model and/or a refined version of this model should include large participant samples of not only low-income African Americans but also large samples of middle class African Americans, and other racial/ethnic minority groups, particularly Hispanic/Latinos. Such research may provide clear implications for developing culturally sensitive interventions to promote medication and dietary adherence and to increase health promoting behaviors among racial/ethnic minorities. Such interventions could be used by health care providers and/or staff in efforts to improve health status outcomes of racial/ethnic minorities, and by so doing, help reduce the health disparities that plague the U.S.

A practical implication of the results of the present study is that health psychologists may facilitate patient-centered culturally sensitive health care in part by training providers to (a) use inventories/questionnaires that identify desired provider behaviors among their culturally diverse patients, particularly those with low household incomes; and (b) engage in the assessment-based provider behaviors desired by their patients. Physical stress was inversely linked to engagement in a health promoting lifestyle among the non-Hispanic White American patients (and to medication adherence among the African American patients). These findings suggest that health psychologists may promote positive health

outcomes among patients with low household incomes such as those in the present study by developing stress management models for use in primary care community-based clinics that serve such patients.

Patient and community empowerment are consistent with the growing interest in community participatory intervention research among researchers (Israel, 2005; Jason, 2004) and among the leadership at the National Institutes of Health. Given that racial/ethnic minorities and individuals with low household incomes often feel especially limited power/control in health care provision interactions with their powerful health care providers, empowering these patients to have increased control in patient-provider interactions and in community participatory health promotion interventions may be an important strategy for improving their health and health care utilization.

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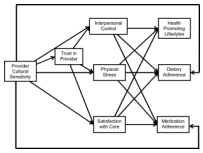

Figure 1.

Schematic of the fully recursive model tested in this study. Regression estimates were first tested in a constrained model (equal parameters for African Americans and Whites) and then in an unconstrained model (free variation in parameters across groups).

Table 1

Correlations Among Variables for the African American and non-Hispanic White Patients

	1	2	3	4	5	6	7	8	*M*	*SD*	α
African American (N = 110)											
1. Provider Cultural Sensitivity	---								03.25	00.55	0.98
2. Trust in provider	0.54**	---							41.31	09.75	0.86
3. Patient Interpersonal Control	0.08	0.18*	---						44.26	9.87	0.67
4. Patient Satisfaction	0.72**	0.64**	0.17*	---					63.06	13.93	0.67
5. Physical Stress	0.01	-0.00	-0.09	-0.03	---				62.74	19.21	0.91
6. Health Promoting Lifestyle	0.24*	0.21*	0.53**	0.23**	-0.01	---			02.47	00.46	0.95
7. Diet Adherence	0.17*	0.18*	0.24**	0.06	0.04	0.20*	---		41.25	07.90	0.62
8. Medication Adherence	0.00	0.07	0.12	0.06	-0.25**	0.26**	0.19*	---	02.37	01.38	0.67
Caucasian/White American (N = 119)											
1. Provider Cultural Sensitivity	---								03.29	00.54	0.99
2. Trust in provider	0.79**	---							41.63	09.44	0.92
3. Patient Interpersonal Control	0.16*	0.20*	---						44.08	10.65	0.93
4. Patient Satisfaction	0.79**	0.82**	0.27**	---					59.88	13.44	0.82
5. Physical Stress	-0.29**	-0.30**	-0.35**	-0.33**	---				63.24	21.59	0.94
6. Health Promoting Lifestyle	0.28**	0.27**	0.43**	0.24**	-0.33**	---			02.54	00.48	0.95
7. Diet Adherence	-0.03	-0.04	0.11	-0.05	-0.09	0.24**	---		44.15	07.41	0.66
8. Medication Adherence	-0.15*	0.19*	0.24**	0.22**	-0.05	0.16	0.14	---	02.55	01.22	0.59

Note.

one-tailed test.

* $p < .05$

** $p < .01$

Table 2

Indirect and Total Effects: Evaluation of Predictor Effects and Race/Ethnic Group Differences

		Predictors									
		Provider Cultural Sensitivity		Trust in provider		Satisfaction with Care		Interpersonal Control		Physical Stress	
		African American	White	African American	White	African American	White	African American	White	African American	White
ent Variable:											
provider	*Total*	**0.548***** (0.083)	*0.823**** (0.034)	--	--	--	--	--	--	--	--
	Direct	**0.548***** (0.083)	*0.823**** (0.034)	--	--	--	--	--	--	--	--
	Indirect	--	--	--	--	--	--	--	--	--	--
tion with Care	*Total*	**0.725***** (0.059)	0.789*** (0.038)	**0.346***** (0.072)	*0.661**** (0.108)	--	--	--	--	--	--
	Direct	**0.535***** (0.088)	*0.245** (0.111)	**0.346***** (0.072)	*0.661**** (0.108)	--	--	--	--	--	--
	Indirect	**0.190**** (0.059)	*0.544**** (0.099)	--	--	--	--	--	--	--	--
sonal Control	*Total*	0.068 (0.104)	0.164 (0.090)	0.206 (0.113)	0.195 (0.146)	--	--	--	--	--	--
	Direct	-0.045 (0.128)	0.003 (0.141)	0.206 (0.113)	0.195 (0.146)	--	--	--	--	--	--
	Indirect	0.113 (0.068)	0.161 (0.121)	--	--	--	--	--	--	--	--
l Stress	*Total*	**0.067** (0.102)	*-0.289*** (0.097)	-0.072 (0.118)	-0.171 (0.124)	-0.056 (0.142)	-0.121 (0.144)	**-0.067** (0.091)	*-0.299**** (0.088)	--	--
	Direct	0.133 (0.151)	-0.118 (0.142)	-0.039 (0.125)	-0.032 (0.106)	-0.056 (0.142)	-0.121 (0.144)	**-0.067** (0.091)	*-0.299**** (0.088)	--	--
	Indirect	-0.066 (0.107)	-0.171 (0.116)	-0.033 (0.054	-0.138 (0.111	--	--	--	--	--	--
Adherence	*Total*	**0.198** (0.105)	*-0.030* (0.101)	0.109 (0.104)	-0.027 (0.170)	-0.283 (0.143)	-0.190 (0.228)	0.244* (0.100)	0.137 (0.097)	0.013 (0.080)	-0.042 (0.095)
	Direct	**0.299*** (0.125)	*0.033* (0.164)	0.158 (0.115)	0.070 (0.251)	-0.283 (0.143)	-0.195 (0.230)	0.245* (0.101)	0.124 (0.099)	0.013 (0.080)	-0.042 (0.095)
	Indirect	-0.101 (0.095)	-0.063 (0.137)	-0.049 (0.068)	-0.097 (0.154)	-0.001 (0.013)	0.005 (0.018)	-0.001 (0.009)	0.013 (0.030)		
Promoting Lifestyle	*Total*	0.238* (0.091)	0.277** (0.097)	0.104 (0.099)	0.122 (0.158)	-0.005 (0.137)	-0.127 (0.167)	0.519*** (0.078)	0.408*** (0.076)	**0.033** (0.099)	*-0.202* (0.107)
	Direct	0.186 (0.127)	0.175 (0.150)	-0.009 (0.137)	0.104 (0.173)	0.012 (0.140)	-0.108 (0.162)	**0.508***** (0.084)	*0.320**** (0.092)	**0.032** (0.100)	*-0.193* (0.101)
	Indirect	0.052 (0.124)	0.102 (0.143)	0.112 (0.085)	0.018 (0.136)	-0.018 (0.032)	-0.019 (0.059)	**0.011** (0.027)	*0.088* (0.046)	0.001 (0.009)	-0.009 (0.022)
tion Adherence	*Total*	0.002 (0.096)	0.152 (0.095)	0.100 (0.131)	0.262 (0.163)	0.070 (0.150)	0.098 (0.186)	0.101 (0.100)	0.199* (0.091)	**-0.239**** (0.087)	*0.077* (0.107)
	Direct	-0.114 (0.152)	-0.083 (0.176)	0.015 (0.162)	0.151 (0.186)	0.113 (0.158)	0.134 (0.195)	0.035 (0.103)	0.205 (0.104)	**-0.242**** (0.086)	*0.083* (0.104)
	Indirect	0.116 (0.127)	0.235 (0.150)	0.086 (0.076)	0.111 (0.135)	-0.044 (0.057)	-0.036 (0.053)	0.066 (0.039)	-0.006 (0.040)	0.003 (0.018)	-0.006 (0.017)

ues represent standardized effect estimates for total, direct, and indirect effects of each predictor; values in parentheses represent standard errors. Standard errors were empirically estimated with otstrapped samples. Where estimates are in a different typeface for African Americans **(boldface)** and non-Hispanic Whites (*italic*), they differ significantly ($p < .05$)

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* $p < .05$

** $p < .01$

*** $p < .001$

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