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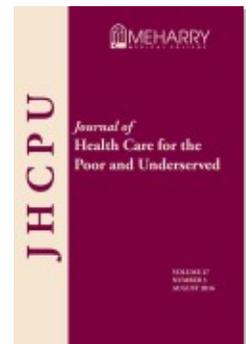
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## **An Analysis of Race-related Attitudes and Beliefs in Black Cancer Patients: Implications for Health Care Disparities**

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*Abstract:* This research concerned relationships among Black cancer patients' health care attitudes and behaviors (e.g., adherence, decisional control preferences,) and their race-related attitudes and beliefs shaped by (a) general life experiences (i.e., perceived discrimination, racial identity) and (b) experiences interacting with health care systems (i.e., physician mistrust, suspicion about medical care). Perceived discrimination, racial identity, and medical suspicion correlated weakly with one another; mistrust and suspicion correlated only moderately. Race-related attitudes and beliefs were associated with health care attitudes and behavior, but patterns of association varied. Physician mistrust and medical suspicion each independently correlated with adherence and decisional control preferences, but discrimination only correlated with control preferences. Associations among patients' different racial attitudes/beliefs are more complex than previously assumed. Interventions that target patient attitudes/beliefs and health care disparities might be more productive if they focus on mistrust or suspicion specific to health care providers/systems and their correlates identified in this study.

*Key words:* Health care disparities, race-related attitudes and beliefs, patient mistrust, patient suspicion, perceived discrimination.

**A**cross a wide variety of diseases, Blacks have significantly greater mortality rates than Whites, even when incidence rates are controlled.<sup>1,2</sup> One significant contribu-

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tor to such differences is widespread and consistent disparities in treatments provided to Black and to White patients.<sup>3</sup> Cancer treatments provide a clear example of such disparities. Black patients with three of the most common cancers—breast, colorectal, and prostate—typically receive less aggressive, appropriate, and timely treatments than do White patients with the same cancers.<sup>4–11</sup> These disparities persist even when other relevant factors (e.g., tumor type, insurance plan) are controlled.

The 2003 Institute of Medicine Report, “Unequal Treatment,”<sup>3</sup> concluded that race-related attitudes and beliefs among both health care providers (e.g., racial bias) and patients (e.g., racial mistrust) are important contributors to treatment disparities. Considerable attention has been given to the role of race-related attitudes and beliefs among providers (especially recent research on implicit racial bias) in treatment disparities.<sup>12</sup> However, much less attention has been given to race-related attitudes/beliefs among patients. This study addresses Black patients’ race-related attitudes/beliefs and their associations with variables that may affect the quality of their interactions with health care systems, and thus ultimately affect the quality of the treatment they receive. More specifically, we considered Black patient attitudes/beliefs shaped and informed by their (a) general life experiences of being a Black person in the U.S. and (b) experiences interacting with health care systems in the U.S.

The measures of patient attitudes/beliefs shaped by Blacks’ general experiences were perceived discrimination and racial identity. Perceived discrimination concerns the perception of unfair or unjustified treatment directed at an individual in various domains of his/her life.<sup>13</sup> Racial identity involve the extent to which an individual’s self-concept is derived from membership in a racial group, as well as the value and emotional significance attached to that membership.<sup>14</sup> The measures of patient attitudes/beliefs shaped by patients’ beliefs about their own and other Black patients’ experiences interacting with health care systems were physician mistrust and group-based medical suspicion. Physician mistrust concerns patients’ lack of trust in physicians as a group.<sup>15</sup> Physician mistrust was considered a race-related attitude because a substantial research literature finds that a long history of racism in medical practice<sup>16</sup> is in part responsible for Black patients having higher levels of physician mistrust than White patients.<sup>17,18</sup> Group-based medical suspicion concerns beliefs about whether members of a racial/ethnic minority group (e.g., Black people) have reason to be suspicious of systems and personnel perceived to “represent the dominant culture.”<sup>19(p.210)</sup>

Strong endorsement of these attitudes/beliefs can negatively affect the quality of Black patients’ health care, and thus contribute directly to racial disparities in health care and health. Documented effects include negative patient attitudes and behaviors toward genetic counseling/testing and cancer screening,<sup>20–22</sup> less confidence in specific health care providers and satisfaction with health care interactions,<sup>23–25</sup> poorer communication with physicians,<sup>26–29</sup> less adherence to medical advice and specific treatment recommendations<sup>23,30</sup> and being less likely to fill needed prescriptions.<sup>30</sup>

Patient race-related attitudes/beliefs have, however, typically been studied separately, and across studies, correlated with different patient characteristics and health-related variables. Thus, it is not known how they relate to one another and whether they show similar patterns of association with variables known to affect patients’ interactions with

health care systems. Thus, we measured these race-related attitudes/behaviors in a single sample of Black cancer patients and correlated them with one another and with a common set of measures of socioeconomic and personal characteristics and health care-related attitudes and self-reported behaviors. We addressed three issues.

The first issue was the associations among the race-related attitudes/beliefs shaped by Black patients' general experiences (i.e., discrimination, racial identity) and those shaped by more specific health care experiences (i.e., mistrust, medical suspicion). Because research shows that members of traditionally disadvantaged groups are especially vigilant for cues of bias and discrimination,<sup>31</sup> we predicted that greater perceived discrimination and racial identity would be related to greater physician mistrust and medical suspicion. Second, we investigated whether the two groups of race-related attitudes/beliefs would show similar patterns of association with patient socioeconomic and personal health characteristics. We predicted they would. Finally, we investigated whether the two groups of race-related attitudes/beliefs would show similar patterns of association with the health care variables. Because physician mistrust and medical suspicion focus specifically on experiences with health care, we predicted they would show stronger associations with health care variables (e.g., health locus of control, adherence, decision control preferences) than would general attitudes/beliefs shaped by life experiences (i.e., perceived discrimination, racial identity).

## Methods

**Population studied.** Data used in this study were taken from baseline questionnaires completed by patients participating in a larger study designed to improve communication between Black cancer patients and their oncologists.<sup>32</sup> Patients were eligible for the larger study (and thus this study) if they self-identified as Black, African American or Afro-Caribbean; were between the ages of 30–85; were able to read and write English well enough to provide consent and answer the questionnaires; had a confirmed diagnosis of breast, colorectal, or lung cancer; and an appointment to see a medical oncologist to discuss medical treatment (e.g., chemotherapy). Data were collected at two major cancer hospitals in Detroit, Michigan. The Institutional Review Boards of both hospitals and Wayne State University approved all procedures.

If an eligible patient indicated interest, a face-to-face meeting with a member of the research staff was arranged. During this meeting, patients signed appropriate consent and Health Information Portability and Accountability Act documents, completed the baseline questionnaire and received a \$30.00 gift card. Patients answered questions relevant to the present study before they entered the larger study. Patient recruitment occurred between April 2012 and December 2014. Of the 273 eligible patients contacted for participation, 137 (50%) agreed to participate; all of these patients completed at least one of the attitudes/beliefs measures.

*Participants.* Patient (n=137) socioeconomic and personal characteristics are presented in Table 1. They were predominantly women (92%, n=125) and most had a diagnosis of breast cancer (83%, n = 114). The mean age was 58.82 (SD =10.76). Almost three fourths (71%, n=91) had an annual family income of less than \$40,000.

**Table 1.****PATIENT CHARACTERISTICS (N=137)**


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Gender:	
Female	125 (92%)
Age:	
Mean	= 58.82 (SD=1.59)
Education: (Highest level)	
Did not graduate high school	33 (24%)
Graduated high school	18 (13%)
Some College	43 (31%)
Graduated College	27 (20%)
Post Graduate	16 (12%)
Income:	
0–\$19,999	56 (44%)
\$20,000–\$39,999	35 (27%)
\$40,000–\$59,999	14 (11%)
\$60,000–\$79,999	11 (9%)
>\$80,000	12 (9%)
Employment Status	
Part/Full time	31 (23%)
Retired	49 (37%)
Medical Leave	27 (21%)
Unemployed	25 (19%)
Marital/Personal Status	
Married/Partner	50 (34%)
Divorced/Widowed/Separated	42 (50%)
Single	37 (26%)
Insurance:	
None	2 (1%)
Private	40 (29%)
Medicaid	44 (32%)
Other Public (e.g., Medicare)	51 (38%)
Type of Cancer:	
Breast	114 (83%)
Colorectal	11 (8%)
Lung	12 (9%)

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**Measures.** There were two measures of general attitudes/beliefs—past perceived personal discrimination and racial identity—and two measures of attitudes/beliefs regarding health care—physician mistrust and medical suspicion.

*Past perceived personal discrimination* was measured with a modified version of Brown's perceived discrimination measure.<sup>13</sup> Patients were asked whether they had ever experienced unfair treatment in each of seven domains—employment (two items), law enforcement, education, housing (two items), and medical care. The measure has a yes/no response scale. The total score represents the number of domains in which

a patient had experienced discrimination and correlates with patient satisfaction and adherence.<sup>23</sup> In this study, the odd-even correlation for the seven items was .65.

*Racial identity* was measured with two items from the four-item identity subscale of the Luhtanen and Crocker Collective Self-Esteem Scale.<sup>29</sup> The two items both loaded  $>.70$  on this highly reliable ( $\alpha=.87$ ) subscale, which is significantly correlated with the importance of being associated with a member of a larger group.<sup>29</sup> The first item was “The racial group I belong to is an *important* part of my feelings about what kind of person I am;” in the second item, the word “important” was changed to “unimportant” and reverse scored. The scale has a five-point response scale (strongly disagree to strongly agree). The mean item score was 3.78 ( $SD=.93$ ); the coefficient alpha was .23. (See Data Preparation and Analyses section for further discussion of the reliability of this measure.)

*Physician mistrust* was measured with the abbreviated five-item Trust in the Medical Profession Scale.<sup>15</sup> The scale concerns the extent to which patients believe physicians are trustworthy and care about them. A five-point Likert response scale was used (strongly disagree to strongly agree). It correlates with how active Black patients are during medical interactions and adherence to physician recommendations.<sup>27,33–35</sup> The scale is scored in the opposite direction from the Group-Based Medical Suspicion Scale; therefore, in the interest of conceptual clarity, we reversed-scored the items before computing the correlations presented in the results section. Thus, a higher score on this scale represented *physician mistrust* rather than trust. When reversed, the mean item score was 2.51 ( $SD = .78$ ) and the coefficient alpha was .85.

*Group-based medical suspicion* was measured with five items from the six-item suspicion subscale of the Group-Based Medical Mistrust Scale (GBMMS).<sup>19</sup> (One item was inadvertently omitted.) This subscale accounts for most of the variance in the mistrust scale. It concerns suspicion that Black patients will be mistreated or somehow abused by the health care system; it correlates with mammogram frequency and attitudes toward prostate screening.<sup>19,34</sup> A five-point response scale (strongly disagree to strongly agree) was used. The mean item score was 1.82 ( $SD = .76$ ); the coefficient alpha was .87.

*Socioeconomic and personal health characteristics.* Patients provided information on their gender, age, education, annual family income, and marital and employment status. They also reported on their health and health literacy.

*Health* was measured with the “howRu’ scale,” which elicits self-reports of four health problems: pain/discomfort, depressive/negative affect, limited activity, and dependence on others.<sup>36</sup> The total scale score correlates highly with both full and subscale SF-12 Health Survey scores.<sup>36</sup> A four-point response scale was used (none to extreme). The mean item score was 1.80 ( $SD = .56$ ); the coefficient alpha was .74.

*Health literacy* was measured with a single item: “How confident are you filling out medical forms by yourself?”<sup>37</sup> Health literacy is the extent to which a person is able to obtain, process and understand basic health information services needed to make appropriate health-related decisions<sup>38</sup> and has been shown to be related to factors such as medication adherence<sup>39</sup> and communication with physicians.<sup>40</sup> This single-item measure accurately predicts health literacy classifications on longer measures of health literacy, such as the Rapid Estimate of Adult Literacy in Medicine (REALM).<sup>37,41</sup> A five-point response scale was used (not at all to extremely). The mean score was 3.93 ( $SD = 1.18$ ).

**Health care-related attitudes and behaviors.** These measures represented different health attitudes and behaviors that were not directly race-related.

*Health locus of control* was measured with the Multi-Dimensional Health Locus of Control Scale's (MHLC-Form C) five subscales.<sup>42</sup> The subscales assessed patients' beliefs about the extent to which five different things determine the course of the cancer: Their Own Actions, Chance, Doctors, Powerful Other People, and God.<sup>43</sup> The subscales correlate with factors such as adherence to treatment protocols<sup>44</sup> and adjustment to breast cancer.<sup>45</sup> A five-point response scale was used (strongly disagree to strongly agree). The mean item scores for the five subscales were: Own Actions, 3.28 (SD =.91); Chance, 3.20 (SD =.97); Doctors, 4.69 (SD =1.01); Powerful Others, 3.50 (SD =1.26); and God, 4.26 (SD =1.11). Coefficient alphas for the subscales ranged from .54 (Doctors) to .81 (God).

*Decisional control preferences* were measured with a modified version of the Control Preferences Scale.<sup>46</sup> Decisional control concerns a patient's preferences for the role she/he will play in making treatment decisions. Such preferences affect satisfaction with care and adherence to treatment recommendations.<sup>47</sup> Patients were asked three separate questions about the extent to which they preferred: (a) making decisions on their own; (b) making joint decisions with physicians and (c) physicians making decisions on their own. A six-point response scale was used (strongly disagree to strongly agree). The mean item scores were: Own Decision, 3.16 (SD =1.52), Joint Decision, 5.01 (SD =1.29), Physician Only Decision, 3.76 (SD =1.53).

*Past medical adherence* was measured with three items from the adherence subscale of the Rand Health Medical Outcomes Study (MOS).<sup>48</sup> Adherence refers to how willing and able patients are to follow physician treatment recommendations and is an important component of treatment effectiveness.<sup>48</sup> The scale was validated in the MOS.<sup>48</sup> A five point-response scale was used (strongly disagree to strongly agree). The mean item score was 4.09 (SD = .67); the coefficient alpha was .75.

**Data preparation.** Across all the items in the questionnaires, the nonresponse rate was less than 4%. Data imputation (participant's scale mean) was used if two or fewer item responses were absent.

**Perceived past personal discrimination.** Based on research by Hagiwara et al.,<sup>24</sup> we investigated whether the distribution of scores on the discrimination measure was linear or had a zero-inflated Poisson distribution (ZIP), which consists of a *binary component*—whether patients reported experiencing none or some past discrimination (i.e., *occurrence*)—and a *count component*—for patients who did report some discrimination, the number of domains in which the patient reported discrimination (i.e., *number*). We found that this measure did, indeed, have a ZIP distribution. Currently, there is no statistical software for regression models with ZIP distribution predictor variables. Further, Hagiwara et al.<sup>24,43</sup> found that the two components had different correlates, such as the proportion of time patients talked during medical interactions relative to their physicians, and the number of chronic illnesses patients had. Thus, in the analyses we used separate measures of the two components of perceived discrimination: *occurrence* and *number*. Ninety-two patients (67%) reported an occurrence of discrimination in at least one domain; among them, the average number of domains in which they reported discrimination (i.e., frequency) was 2.57 (SD=1.69).

**Racial identity.** The low coefficient alpha (.23) on the *Racial Identity* measure was inconsistent with prior research.<sup>29</sup> As already noted, the two items were essentially opposites of one another, and had an identical response scale. Thus, when the second item was reversed, a patient's responses to the two items should have been quite similar. However, 38 (29%) of the 131 patients who completed this measure had a response difference that exceeded two response categories (e.g., they strongly agreed with the first item but disagreed with the second item). Because we had no way of determining which response reflected these patients' feelings, we excluded their racial identity scores from the analyses. Among the 93 patients included in the analyses, the mean item response was 4.06 (SD = .97); the coefficient alpha was .86.

As already noted, the two components of the personal discrimination measure—occurrence and number—were analyzed separately. Thus, five measures of race-related attitudes/beliefs were used in the analyses: the two components of the discrimination measure, racial identity, physician mistrust (i.e., physician trust reversed scored), and group-based medical suspicion. We found no differences by patient gender, so males and females were combined in the analyses. Marital and employment status also did not affect the variables of interest and thus were not included in the analyses.

**Analyses.** Pearson Product Moment Correlations (IBM Statistical Package for the Social Sciences, Release 22.0) were the primary test of associations among the variables of interest. Partial correlations were used in ancillary analyses to control for effects of education. A p-level of  $\leq .05$  was used ( $1-\beta = .85$ ) for analyses of the nine associations among measures of race-related attitudes/beliefs. Because of the much larger number tests of significance for associations (70) between the race-related attitudes/beliefs and the health care variables, a more conservative p-level of .025 was used. With this number of significance tests and a .025 p-level, we would expect about two associations to be significant by chance; 17 were significant. However, the large number of significance tests conducted does increase the probability of a Type 1 error and thus they must be viewed with some caution.

## Results

**Associations within race-related attitudes/beliefs.** As expected, the race-related health care attitudes/beliefs, physician mistrust and medical suspicion, were significantly associated with one another ( $p \leq .01$ ). (See Table 2.) However, associations between general and health care-specific measures were not as strong as expected. Both measures of discrimination were significantly correlated with physician mistrust ( $p's \leq .01$ ), but only discrimination occurrence was significantly associated with medical suspicion ( $p \leq .05$ ). Racial identity was not correlated with any of the other measures.

**Associations of race-related attitudes/beliefs with patient socioeconomic and personal health characteristics.** The pattern of association with education and income was largely consistent across the race-related attitudes/beliefs. (See Table 3.) Discrimination number and physician mistrust were both significantly *positively* correlated with education ( $p's \leq .025$ ). Discrimination number and racial identity also showed significant *positive* associations with income ( $p's \leq .01$ ). In contrast, medical suspicion was *negatively* associated with *education* ( $p \leq .025$ ).

**Table 2.****CORRELATIONS AMONG MEASURES OF RACE-RELATED THOUGHTS AND FEELINGS**

	Discrimination Occurrence (n=137)	Discrimination Number (n=92)	Racial Identity (n=93)	Physician Mistrust (n=131) <sup>a</sup>	Medical Suspicion (n=130)
Discrimination Occurrence	1 <sup>a</sup>	NA			
Discrimination Number	NA	1			
Racial Identity	-.11	.13	1		
Physician Mistrust	.35**	.29**	-.09	1	
Medical Suspicion	.18*	.08	-.11	.35**	1

\*p≤.05  
\*\*p≤.01  
<sup>a</sup>Physician Trust Scale total reverse scored for clarity

Regarding associations among race-related attitudes/beliefs and personal health characteristics, as expected from prior research,<sup>49</sup> discrimination number was *positively* correlated with reports of total number of health problems ( $p \leq .025$ ). In contrast, racial identity was *negatively* correlated with the health problem of dependence on others ( $p \leq .025$ ). Finally, only suspicion was *negatively* associated with health literacy ( $p \leq .01$ ).

**Associations of race-related attitudes/beliefs with health care-related attitudes and behaviors.** As expected, physician mistrust and medical suspicion had more associations with health care-related attitudes and behavior than did either discrimination or racial identity. However, overall, patterns of association differed across race-related attitudes/beliefs.

There were a few significant associations between race-related attitudes/beliefs and *Health Locus of Control* subscales, but they were not consistent across these attitudes/beliefs. Only physician mistrust was *negatively* associated with Chance Locus of Control ( $p \leq .01$ ) (i.e., patient beliefs that the course of their cancer was due to chance). Only racial identity was *positively* correlated with Powerful Others Locus of Control ( $p \leq .025$ ) (i.e., patient beliefs that others play a powerful role in their cancer). Finally, only medical suspicion was *negatively* associated with Physician Locus of Control ( $p \leq .025$ ) (i.e., patient beliefs that physicians play a role in their cancer).

As previous research would suggest,<sup>24,27</sup> discrimination occurrence and physician mistrust were associated with *Decisional Control Preferences*. Specifically, both were *negatively* associated with a preference for physicians making treatment decision alone ( $p \leq .01$ ). Beyond this, there was, again, no cross-measure consistency in the associations. For example, discrimination occurrence was also *positively* associated with a preference for patients making decisions on their own ( $p \leq .01$ ), but racial identity was *negatively* associated with this preference ( $p \leq .01$ .) Finally, medical suspicion was unrelated to

**Table 3.**  
**CORRELATIONS BETWEEN RACE-RELATED THOUGHTS AND FEELINGS AND PATIENT PERSONAL ATTRIBUTES, ATTITUDES AND BEHAVIOR**

	Discrimination Occurrence (n=135)	Discrimination Number (n=90)	Racial Identity (n=92)	Physician Mistrust (n=129) <sup>a</sup>	Medical Suspicion (n=128)
Age	.08	-.16	-.05	.05	.18
Education	.15	.27**	.18	.22*	-.20*
Family Income	-.01	.27**	.30**	.09	-.09
Health Problems	.06	.21*	-.15	.00	.08
Health Literacy	-.07	.11	.11	-.07	-.26**
HLC Internal	.01	.00	-.00	-.08	.12
HLC Chance	.01	-.14	-.02	-.29**	-.11
HLC Physicians	.15	.19	.07	-.12	-.23**
HLC Powerful Others	.12	.09	.24*	.01	.08
HLC God	.03	-.06	-.06	-.07	-.13
Prefers Making Decisions Alone	.26**	.07	-.26**	.06	.06
Prefers Joint Decisions	.02	-.06	.06	-.14	-.29**
Prefers Physician Makes Decisions	-.22*	-.14	-.05	-.30**	-.06
Adherence	-.06	.03	.12	-.34**	-.36**

\*p≤.025  
 \*\*p≤.01  
<sup>a</sup>Physician Trust Scale total reverse scored for clarity

either of these preferences, but was *negatively* associated with a preference for making joint treatment decisions with physicians ( $p \leq .01$ ).

With respect to *Past Medical Adherence*, as expected,<sup>19,23,27</sup> both physician mistrust and medical suspicion were *negatively* associated with adherence ( $p$ 's < .01). This was the only instance where these two measures showed the same pattern of association with health-related attitudes or behavior. We conducted a regression analysis to see if they accounted for common or unique variance in patient adherence. The regression weights for each of these measures indicated that mistrust and suspicion each made significant *unique* contributions to variance in patient adherence (both  $p$ 's ≤ .001).

**Ancillary analyses: partial correlations and interactions.** Education was significantly correlated with three measures of race-related attitudes/beliefs (discrimination number, physician mistrust, and medical suspicion) and with several of the measures of patient characteristics and health care attitudes/behaviors (e.g. health literacy). This

raised the possibility that these measures' shared associations with education were the reason they were significantly correlated. We examined this possibility by computing partial correlations controlling for patient education and examining correlations among the other measures. Even when education was controlled, there were no discernable changes in relationships; all remained significant and did not appreciably change in magnitude. Finally, we examined whether any of the significant bivariate associations involving individual race-related attitudes/beliefs might be qualified by higher order interactions among them. No significant interactions were found.

## Discussion

This study was prompted by two well-documented findings in the current health disparities literature. First, relative to White patients with the same diseases, Black patients often are less likely to receive needed treatments less frequently and the treatments that are provided are often less aggressive and appropriate.<sup>3-11</sup> Second, as discussed in the introduction, there is strong evidence that patients' race-related attitudes/beliefs play some role in these disparities.<sup>9,12</sup> In this study we recruited a single sample of Black cancer patients in active treatment and investigated how patients' race-related attitudes/beliefs were associated with one another, their socioeconomic and personal health characteristics, and their health care-related attitudes and behaviors.

As predicted, physician mistrust was correlated with both medical suspicion and perceived past discrimination, although only moderately so ( $r$ 's .07 to .35; see Table 2). Beyond that, even without racial identity (which did not correlate with any of the other measures), there was relatively little convergence among the other measures of race-related attitudes/beliefs (mean  $r$ =.25). This average correlation suggests little convergence among the race-related attitudes/beliefs represented by the measures.<sup>50</sup>

We found some consistency among the race-related attitudes beliefs with regard to associations with socioeconomic characteristics. Generally, higher education and/or income was *positively* associated with *higher* levels of perceived discrimination (occurrence and number), racial identity, and physician mistrust. Although there is some variance across studies, this positive association is often found among Blacks as a group and among Black female patients.<sup>51-54</sup> However, in contrast, education was *negatively* associated with medical suspicion. Only two of the race-related attitudes/beliefs were correlated with patient personal health characteristics: discrimination and health problems (positive) and medical suspicion and health literacy (negative). So, although there was some evidence of consistency across most of the measures with regard to associations with socio-economic status, medical suspicion again appears to be an outlier.

As predicted, negative race-related attitudes/beliefs shaped by experiences with the health care system (i.e., physician mistrust, medical suspicion) were the strongest correlates of health care-related attitudes and behaviors. Specifically, one or the other of them predicted health locus of control, decisional control preferences, and adherence. Perceived discrimination did not correlate with health locus of control or adherence. Thus, quite logically, the more a race-related attitude/belief specifically concerns health care the more strongly it is associated with health care-related attitudes and behavior

In sum, examinations of the patterns of association for the individual race-related

attitudes/beliefs provided little evidence of convergence among them. Racial identity correlated with decisional preferences, but the direction of this association was the opposite of the associations involving the other attitudes/beliefs. However, the most notable example was the unique set of associations again involving medical suspicion. Specifically, relative to patients who reported lower levels of suspicion, those who reported higher levels of suspicion were less likely to believe that physicians are important in determining the course of their cancer, and less likely to prefer making *joint* treatment decisions with physicians. It appears that, in comparison to other negative attitudes/beliefs such as discrimination and even physician mistrust, suspicion was much more focused on a rejection or discounting of the role of physicians in their cancer care (and perhaps the health information they provide—as noted, medical suspicion also correlated negatively with health literacy).

In this context, the relationship between medical suspicion and physician mistrust also merits mention. Although these two measures were significantly correlated (.35), correlations of this size are usually considered only moderate effect sizes.<sup>50</sup> Further, the two measures' correlations with education were in the *opposite* direction (medical suspicion negative; physician mistrust positive); and physician mistrust was much more strongly associated with both discrimination measures than was medical suspicion. There was only one health care variable with which they both correlated significantly (adherence), but the regression analysis showed that they each accounted for unique variance in patients' reports of adherence. All of this suggests that physician mistrust and medical suspicion are not equivalent or interchangeable measures.

**Implications.** These findings have implications for both basic research on the role of Black patients' race-related attitudes/beliefs in health care disparities and on interventions designed to reduce these disparities. With regard to the former, findings suggest the nature of the associations among these attitudes/beliefs may be more complex than prior research would suggest. For example, the physician mistrust and medical suspicion measures appear to be assessing two related, but clearly distinct constructs with different correlates.<sup>55</sup> Thus, to meaningfully study how Black patients' race-related attitudes/beliefs might affect their interactions with the health care system, careful consideration must be given to which aspect of such interactions is of interest and which kind of race-related attitudes/beliefs should have either an empirical or theoretical connection to the phenomenon of interest. At a practical level, interventions designed to reduce the influence of race-related attitude/beliefs on some aspect of Black patients' interactions with health care systems must carefully consider what race-related attitude/belief should be the focus of an intervention or used as a moderator of an intervention's effects. Considerations of what race-related attitude/belief is most relevant to the outcome of interest should lead to more effective and efficient interventions.

**Limitations.** First, we again acknowledge that the large number of significance tests could produce some chance findings. However, the significant findings are theoretically interpretable and the actual number of significant correlations far exceeded those expected by chance. Still, the patients' questionnaire responses provided little information as to *why* they answered as they did. Research involving qualitative, in-depth interviews is needed to better understand the meaning of certain race-related attitudes/beliefs, and how this maps on to survey responses. A qualitative approach might ultimately

lead to a better understanding of some of the findings and exclusion of those actually due to chance.

Another limitation is the relatively low proportion of eligible patients who actually participated in the study, which raises the possibility of a selection bias. Agreeing to participate suggests the patients had some amount of trust in hospitals and their professional staff. Thus, they may also have had fewer past experiences of discrimination, less mistrust, and less suspicion than is typical of Black patients. If so, this could have resulted in some restriction of range on some measures and possibly lower inter-measure correlations than might be found with a different sample. However, we compared these patients to clinic and community samples of Blacks in other studies that have used the same measures. We found that they reported *more* discrimination and physician distrust, and were also marginally lower in suspicion.<sup>19,34,56</sup> A related potential limitation is that patients in this study differed from national samples of Blacks in some important respects. First, they were predominantly women with breast cancer, which may limit the generalizability of the findings to Black male patients with cancers at other sites. Next, the participants' median annual family income (just over \$20,000 per year) was substantially less than that of all Black families in the U.S (about \$35,000).<sup>57</sup> While data from this understudied group of patients (i.e., very low-income Black cancer patients) are valuable in their own right, this restriction of range on income could also mask some important relationships between race-related attitudes/beliefs and income.

A final difference was that most patients lived in a city where most residents (about 85%) self-identify as Black or African American. Some studies suggest racial composition of the geographic area in which Blacks live can affect race-related attitudes/beliefs.<sup>58</sup> For example, when compared to Blacks who live in areas where they are the racial *minority* group, Blacks who live in racial majority areas may be less likely to consider race an important factor in their interactions with others. Also, racial composition in a geographic area may affect associations between certain race-related attitudes/beliefs and other variables. For example, the relationship between racial identity and feelings of psychological distress may be weaker in Black majority than minority areas.<sup>58</sup> This may explain why, contrary to some prior findings<sup>59</sup> racial identity was not correlated with perceived discrimination and *negatively* correlated with one individual health-problem—depending too much on others. That is, perhaps in this sample, a strong racial identity may have reflected feelings of success and social acceptance in the majority Black community rather than a means to psychologically defend oneself from effects of racial discrimination. The possibility that some findings were affected by the racial composition of the city in which the study was conducted could be tested by conducting similar studies in areas with differing racial compositions. However, if differences were found, this would not invalidate the current findings, but rather would further illustrate the complexities of Black patients' race-related attitudes/beliefs.

**Summary and conclusions.** Results of this study confirm that Black patients' race-related attitudes/beliefs are related to variables that affect Black patients' interactions with health care systems. However, they also suggest that the associations among different aspects of these attitudes/beliefs may be more complex than previously assumed. Perceived past discrimination is an important part of the experiences Black patients

bring to their health care interactions, but it appears that health care disparities research and interventions that target Black patients' race-related attitudes/beliefs should focus on mistrust or suspicion specific to health care providers/systems and their correlates identified in this study.

Finally, it is critical to note that we are not, as it were, blaming the victims. The race-related attitudes and beliefs that affect Black patients' interactions with health care systems are not delusional. Rather they are largely realistic responses to both the interpersonal and institutional racism that many Blacks confront within and outside of medical settings. Thus, the task is not to so much to challenge these attitudes and beliefs as it is to develop ways to minimize their deleterious effects on health care interactions. The onus resides with the health care system, rather than with patients. For example, there is a dramatic underrepresentation of Blacks among oncologists and other clinical staff.<sup>60</sup> Thus, most oncology interactions are racially discordant and in racially discordant interactions Black patients' race-related attitudes and beliefs take on additional salience and importance<sup>31</sup> and are especially likely to influence physician communication and health-related outcomes.<sup>9,12,23,24,27</sup> Greater diversity in the health care professionals who serve Black patients would likely reduce the incidence of health care disparities associated with their race-related attitudes and beliefs. It is, thus, incumbent on medical institutions to make a greater attempt to match the racial/ethnic background of the clinical staff and the patients for whom they provide care.

## References

1. National Center for Health Statistics. Health, United States, 2013: with special feature on prescription drugs. Hyattsville, MD: National Center for Health Statistics, 2014. Available at: <http://www.cdc.gov/nchs/data/abus/abus13.pdf>.
2. DeSantis CE, Lin CC, Mariotto AB, et al. Cancer treatment and survivorship statistics, 2014. *CA Cancer J Clin*. 2014 Jul–Aug;64(4):252–71. Epub 2014 Jun 1. <http://dx.doi.org/10.3322/caac.21235>  
PMid:24890451
3. Smedley BD, Stith AY, Nelson AR. Unequal treatment: confronting racial and ethnic disparities in health care. Washington DC: National Academies Press, 2003.
4. Bickell NA, Wang JJ, Oluwole S, et al. Missed opportunities: racial disparities in adjuvant breast cancer treatment. *J Clin Oncol*. 2006 Mar 20;24(9):1357–62. <http://dx.doi.org/10.1200/JCO.2005.04.5799>  
PMid:16549830
5. Murphy CC, Harlan LC, Warren JL, et al. Race and insurance differences in the receipt of adjuvant chemotherapy among patients with stage III colon cancer. *J Clin Oncol*. 2015 Aug 10;33(23):2530–6. Epub 2015 Jul 6. <http://dx.doi.org/10.1200/JCO.2015.61.3026>  
PMid:26150445
6. Hayn MH, Orom H, Shavers VL, et al. Racial/ethnic differences in receipt of pelvic lymph node dissection among men with localized/regional prostate cancer. *Cancer*. 2011 Oct 15;117(20):4651–8. Epub 2011 Mar 31. <http://dx.doi.org/10.1002/cncr.26103>  
PMid:21456009 PMCID:PMC3505608

7. Goyal MK, Kuppermann N, Cleary SD, et al. Racial disparities in pain management of children with appendicitis in emergency departments. *JAMA Pediatr.* 2015 Nov;169(11):996–1002.  
<http://dx.doi.org/10.1001/jamapediatrics.2015.1915>  
PMid:26366984 PMCID:PMC4829078
8. Meghani SH, Kang Y, McMenamin E, et al. African Americans with cancer pain are more likely to receive an analgesic with toxic metabolite despite clinical risks: a mediation analysis study. *J Clin Oncol.* 2014 Sep 1;32(25):2773–9. Epub 2014 Jul 21.  
<http://dx.doi.org/10.1200/JCO.2013.54.7992>  
PMid:25049323 PMCID:PMC4145186
9. Penner LA, Eggly S, Griggs JJ, et al. Life-threatening disparities: the treatment of Black and White cancer patients. *J Soc Issues.* 2012 Jun 25;68(2).  
<http://dx.doi.org/10.1111/j.1540-4560.2012.01751.x>  
PMid:24319297 PMCID:PMC3849720
10. Daly B, Olopade OI. A perfect storm: how tumor biology, genomics, and health care delivery patterns collide to create a racial survival disparity in breast cancer and proposed interventions for change. *CA Cancer J Clin.* 2015 May–Jun;65(3):221–38. Epub 2015 Apr 9.  
<http://dx.doi.org/10.3322/caac.21271>  
PMid:25960198
11. Gerber JS, Prasad PA, Localio AR, et al. Racial differences in antibiotic prescribing by primary care pediatricians. *Pediatrics.* 2013 Apr;131(4):677–84. Epub 2013 Mar 18.  
<http://dx.doi.org/10.1542/peds.2012-2500>  
PMid:23509168
12. Penner LA, Blair IV, Albrecht TL, et al. Reducing racial health care disparities: a social psychological analysis. *Policy Insights Behav Brain Sci.* 2014 Oct;1(1):204–12.  
<http://dx.doi.org/10.1177/2372732214548430>  
PMid:25705721 PMCID:PMC4332703
13. Brown TN. Measuring self-perceived racial and ethnic discrimination in social surveys. *Soc Spectrum.* 2001;21(3):377–92.  
<http://dx.doi.org/10.1080/027321701300202046>
14. Sellers RM, Shelton JN. The role of racial identity in perceived racial discrimination. *J Pers Soc Psychol.* 2003 May;84(5):1079–92.  
<http://dx.doi.org/10.1037/0022-3514.84.5.1079>  
PMid:12757150
15. Dugan E, Trachtenberg F, Hall MA. Development of abbreviated measures to assess patient trust in a physician, a health insurer, and the medical profession. *BMC Health Serv Res.* 2005 Oct 3;5:64.  
<http://dx.doi.org/10.1186/1472-6963-5-64>  
PMid:16202125 PMCID:PMC1262715
16. Byrd WM, Clayton LA. *An American health dilemma: a medical history of African Americans and the problem of race: beginnings to 1900.* New York, NY: Routledge, 2012.
17. Boulware LE, Cooper LA, Ratner LE, et al. Race and trust in the health care system. *Public Health Rep.* 2003 Jul–Aug;118(4):358–65.  
[http://dx.doi.org/10.1016/S0033-3549\(04\)50262-5](http://dx.doi.org/10.1016/S0033-3549(04)50262-5)
18. LaVeist TA, Kim JN, Bowie JV. Attitudes about racism, medical mistrust, and satisfaction with care among African American and white cardiac patients. *Med Care Res Rev.* 2000;57 Suppl 1:146–61.

- <http://dx.doi.org/10.1177/1077558700574007>  
<http://dx.doi.org/10.1177/107755800773743637>  
 PMID:11092161
19. Thompson HS, Valdimarsdottir HB, Winkel G, et al. The Group-Based Medical Mistrust Scale: psychometric properties and association with breast cancer screening. *Prev Med.* 2004 Feb;38(2):209–18.  
<http://dx.doi.org/10.1016/j.ypmed.2003.09.041>  
 PMID:14715214
  20. Crawley L, Ahn D, Winkleby M. Perceived medical discrimination and cancer screening behaviors of racial and ethnic minority adults. *Cancer Epidemiol Biomarkers Prev.* 2008 Aug;17(8):1937–44. Epub 2008 Aug 6.  
<http://dx.doi.org/10.1158/1055-9965.EPI-08-0005>  
 PMID:18687583 PMCID:PMC2526181
  21. Sheppard VB, Mays D, LaVeist T, et al. Medical mistrust influences black women's level of engagement in BRCA 1/2 genetic counseling and testing. *J Natl Med Assoc.* 2013 Spring;105(1):17–22.  
[http://dx.doi.org/10.1016/S0027-9684\(15\)30081-X](http://dx.doi.org/10.1016/S0027-9684(15)30081-X)
  22. Sussner KM, Edwards TA, Thompson HS, et al. Ethnic, racial and cultural identity and perceived benefits and barriers related to genetic testing for breast cancer among at-risk women of African descent in New York City. *Public Health Genomics.* 2011 14(6):356–70. Epub 2011 May 3.  
<http://dx.doi.org/10.1159/000325263>  
 PMID:21540561 PMCID:PMC3221259
  23. Penner LA, Dovidio JF, Edmondson D, et al. The experience of discrimination and Black-White health disparities in medical care. *J Black Psychol.* 2009 May 1; 35(2).  
<http://dx.doi.org/10.1177/0095798409333585>  
 PMID:24347741 PMCID:PMC3862356
  24. Benkert R, Hollie B, Nordstrom CK, et al. Trust, mistrust, racial identity and patient satisfaction in urban African American primary care patients of nurse practitioners. *J Nurs Scholarsh.* 2009;41(2):211–19.  
<http://dx.doi.org/10.1111/j.1547-5069.2009.01273.x>  
 PMID:19538706
  25. Moore AD, Hamilton JB, Knafelz GJ, et al. The influence of mistrust, racism, religious participation, and access to care on patient satisfaction for African American men: the North Carolina–Louisiana Prostate Cancer Project. *J Natl Med Assoc.* 2013 Spring;105(1):59–68.  
[http://dx.doi.org/10.1016/S0027-9684\(15\)30086-9](http://dx.doi.org/10.1016/S0027-9684(15)30086-9)
  26. Baker TA, O'Connor ML, Roker R, et al. Satisfaction with pain treatment in older cancer patients: identifying variants of discrimination, trust, communication, and self-efficacy. *J Hosp Palliat Nurs.* 2013 Dec;15(8).  
<http://dx.doi.org/10.1097/NJH.0b013e3182a12c24>  
 PMID:24363611 PMCID:PMC3867008
  27. Hagiwara N, Penner LA, Gonzalez R, et al. Racial attitudes, physician-patient talk time ratio, and adherence in racially discordant medical interactions. *Soc Sci Med.* 2013 Jun;87:123–31. Epub 2013 Mar 28.  
<http://dx.doi.org/10.1016/j.socscimed.2013.03.016>  
 PMID:23631787 PMCID:PMC3677202
  28. Sheppard VB, Isaacs C, Luta G, et al. Narrowing racial gaps in breast cancer chemo-

- therapy initiation: the role of the patient-provider relationship. *Breast Cancer Res Treat.* 2013 May;139(1):207–16. Epub 2013 Apr 16.  
<http://dx.doi.org/10.1007/s10549-013-2520-3>  
PMid:23588954 PMCID:PMC3662254
29. Shelton RC, Clarke Hillyer G, Hershman DL, et al. Interpersonal influences and attitudes about adjuvant therapy treatment decisions among non-metastatic breast cancer patients: an examination of differences by age and race/ethnicity in the BQUAL study. *Breast Cancer Res Treat.* 2013 Feb;137(3):817–28. Epub 2012 Dec 22.  
<http://dx.doi.org/10.1007/s10549-012-2370-4>  
PMid:23263696 PMCID:PMC3563273
  30. LaVeist TA, Isaac LA, Williams KP. Mistrust of health care organizations is associated with underutilization of health services. *Health Serv Res.* 2009 Dec;44(6):2093–105. Epub 2009 Sep 2.  
<http://dx.doi.org/10.1111/j.1475-6773.2009.01017.x>  
PMid:19732170 PMCID:PMC2796316
  31. Vorauer JD. An information search model of evaluative concerns in intergroup interaction. *Psychol Rev.* 2006 Oct;113(4):862–86.  
<http://dx.doi.org/10.1037/0033-295X.113.4.862>  
PMid:17014306
  32. Eggly S, Tkatch R, Penner LA, et al. Development of a question prompt list as a communication intervention to reduce racial disparities in cancer treatment. *J Cancer Educ.* 2013 Jun;28(2):282–9.  
<http://dx.doi.org/10.1007/s13187-013-0456-2>  
PMid:23440665 PMCID:PMC3665702
  33. Luhtanen R, Crocker J. A collective self-esteem scale: self-evaluation of one's social identity. *Pers Soc Psychol Bull.* 1992 Jun;18(3):302–18.  
<http://dx.doi.org/10.1177/0146167292183006>
  34. Shelton RC, Winkel G, Davis SN, et al. Validation of the group-based medical mistrust scale among urban black men. *J Gen Intern Med.* 2010 Jun;25(6):549–55. Epub 2010 Mar 2.  
<http://dx.doi.org/10.1007/s11606-010-1288-y>  
PMid:20195782 PMCID:PMC2869405
  35. Penner LA, Gaertner S, Dovidio JF, et al. A social psychological approach to improving the outcomes of racially discordant medical interactions. *J Gen Intern Med.* 2013 Sep;28(9):1143–9. Epub 2013 Feb 2.  
<http://dx.doi.org/10.1007/s11606-013-2339-y>  
PMid:23377843 PMCID:PMC3744315
  36. Benson T, Sizmur S, Whatling J, et al. Evaluation of a new short generic measure of health status: howRu. *Inform Prim Care.* 2010;18(2):89–101.  
<http://dx.doi.org/10.14236/jhi.v18i2.758>
  37. Wallace LS, Rogers ES, Roskos SE, et al. Brief report: screening items to identify patients with limited health literacy skills. *J Gen Intern Med.* 2006 Aug;21(8):874–7.  
<http://dx.doi.org/10.1111/j.1525-1497.2006.00532.x>  
PMid:16881950 PMCID:PMC1831582
  38. Institute of Medicine. *Health literacy: a prescription to end confusion.* Washington, DC: National Academies Press, 2004.
  39. Osborn CY, Paasche-Orlow MK, Davis TC, et al. Health literacy: an overlooked factor in understanding HIV health disparities. *Am J Prev Med.* 2007 Nov;33(5):374–8.  
<http://dx.doi.org/10.1016/j.amepre.2007.07.022>

- PMid:17950402
40. Williams MV, Davis T, Parker RM, et al. The role of health literacy in patient-physician communication. *Fam Med.* 2002 May;34(5):383–9.  
PMid:12038721
  41. Davis TC, Long SW, Jackson RH, et al. Rapid estimate of adult literacy in medicine: a shortened screening instrument. *Fam Med.* 1993 Jun;25(6):391–5.  
PMid:8349060
  42. Wallston KA, Stein MJ, Smith CA. Form C of the MHLC scales: a condition-specific measure of locus of control. *J Pers Assess.* 1994 Dec;63(3):534–53.  
[http://dx.doi.org/10.1207/s15327752jpa6303\\_10](http://dx.doi.org/10.1207/s15327752jpa6303_10)  
PMid:7844739
  43. Wallston KA, Malcarne VL, Flores L, et al. Does God determine your health? The God locus of health control scale. *Cognit Ther Res.* 1999;23(2):131–42.  
<http://dx.doi.org/10.1023/A:1018723010685>
  44. O’Hea EL, Moon S, Grothe KB, et al. The interaction of locus of control, self-efficacy, and outcome expectancy in relation to HbA1c in medically underserved individuals with type 2 diabetes. *J Behav Med.* 2009 Feb;32(1):106–17. Epub 2008 Dec 17.  
<http://dx.doi.org/10.1007/s10865-008-9188-x>  
PMid:19089606
  45. Taylor SE, Lichtman RR, Wood JV. Attributions, beliefs about control, and adjustment to breast cancer. *J Pers Soc Psychol.* 1984 Mar;46(3):489–502.  
<http://dx.doi.org/10.1037/0022-3514.46.3.489>  
PMid:6707865
  46. Degner LF, Kristjanson LJ, Bowman D, et al. Information needs and decisional preferences in women with breast cancer. *JAMA.* 1997 May 14;277(18):1485–92.  
<http://dx.doi.org/10.1001/jama.277.18.1485>  
<http://dx.doi.org/10.1001/jama.1997.03540420081039>  
PMid:9145723
  47. Ghane A, Huynh HP, Andrews SE, et al. The relative importance of patients’ decisional control preferences and experiences. *Psychol Health.* 2014;29(10):1105–18.  
<http://dx.doi.org/10.1080/08870446.2014.911873>  
PMid:24724728
  48. Hays RD, Kravitz RL, Mazel RM, et al. The impact of patient adherence on health outcomes for patients with chronic disease in the Medical Outcomes Study. *J Behav Med.* 1994 Aug;17(4):347–60.  
<http://dx.doi.org/10.1007/BF01858007>  
PMid:7966257
  49. Hagiwara N, Penner LA, Gonzalez R, et al. Within-group health disparities among Blacks: the effects of Afrocentric features and unfair treatment. *Cultur Divers Ethnic Minor Psychol.* 2013 Oct;19(4):477–80. Epub 2013 Aug 5.  
<http://dx.doi.org/10.1037/a0032566>  
PMid:23914746 PMCID:PMC3818459
  50. Cohen J. A power primer. *Psych Bull.* 1992 Jul;112(1):155–9.  
<http://dx.doi.org/10.1037/0033-2909.112.1.155>  
PMid:19565683
  51. Bird ST, Bogart LM. Perceived race-based and socioeconomic status (SES)-based discrimination in interactions with health care providers. *Ethn Dis.* 2001 Autumn;11(3):554–63.  
PMid:11572421

52. Dovidio JF, Penner LA, Albrecht TA, et al. Disparities and distrust: the implications of psychological processes for understanding racial disparities in health and health care. *Soc Sci Med*. 2008 Aug;67(3):478–86. Epub 2008 May 26.  
<http://dx.doi.org/10.1016/j.socscimed.2008.03.019>  
PMid:18508171
53. Gibbons FX, Etcheverry PE, Stock ML, et al. Exploring the link between racial discrimination and substance use: what mediates? What buffers? *J Pers Soc Psychol*. 2010 Nov;99(5):785–801.  
<http://dx.doi.org/10.1037/a0019880>  
PMid:20677890 PMCid:PMC3314492
54. Hausmann LR, Jeong K, Bost JE, et al. Perceived discrimination in health care and health status in a racially diverse sample. *Med Care*. 2008 Sep;46(9):905–14.  
<http://dx.doi.org/10.1097/MLR.0b013e3181792562>  
PMid:18725844 PMCid:PMC3424509
55. Sinaceur M. Suspending judgment to create value: suspicion and trust in negotiation. *J Exp Soc Psychol*. 2010;46:543–50.  
<http://dx.doi.org/10.1016/j.jesp.2009.11.002>
56. Penner LA, Hagiwara N, Eggly S, et al. Racial healthcare disparities: a social psychological analysis. *Eur Rev Soc Psychol*. 2013;24(1):70–122.  
<http://dx.doi.org/10.1080/10463283.2013.840973>  
PMid:25197206 PMCid:PMC4151477
57. DeNavas-Walt C, Proctor BD. Income and poverty in the United States: 2013. Washington, DC: U.S. Census Bureau, 2014. Available at: <https://www.census.gov/content/dam/Census/library/publications/2014/demo/p60-249.pdf>.
58. Hurd NM, Sellers RM, Cogburn CD, et al. Racial identity and depressive symptoms among Black emerging adults: the moderating effects of neighborhood racial composition. *Dev Psychol*. 2013 May;49(5):938–50. Epub 2012 Jun 18.  
<http://dx.doi.org/10.1037/a0028826>  
PMid:22709129 PMCid:PMC3484216
59. Sellers RM, Caldwell CH, Schmeelk-Cone KH, et al. Racial identity, racial discrimination, perceived stress, and psychological distress among African American young adults. *J Health Soc Behav*. 2003 Sep;44(3):302–17.  
<http://dx.doi.org/10.2307/1519781>  
PMid:14582310
60. Hamel LM, Chapman R, Malloy M, et al. Critical shortage of African American medical oncologists in the United States. *J Clin Oncol*. 2015 Nov 10;33(32):3697–700. Epub 2015 Sep 21.  
<http://dx.doi.org/10.1200/JCO.2014.59.2493>  
PMid:26392105