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## Stereotype Threat Among Black and White Women in Health Care Settings

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### Abstract

The first of its kind, the present experiment applied stereotype threat—the threat of being judged by or confirming negative group-based stereotypes—to the health sciences. Black and White women ( $N = 162$ ) engaged in a virtual health care situation. In the experimental condition, one's ethnic identity and negative stereotypes of Black women specifically were made salient. As predicted, Black women in the stereotype threat condition who were strongly identified as Black (in terms of having explored what their ethnic identity means to them and the role it plays in their lives) reported significantly greater anxiety while waiting to see the doctor in the virtual health care setting than all other women. It is hypothesized that stereotype threat experienced in health care settings is one overlooked social barrier contributing to disparities in health care utilization and broader health disparities among Black women.

### Keywords

stereotype threat; health disparities; Black; health care; women

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Black women face stark and persistent health disparities compared with White women and women of most other ethnic backgrounds (U.S. Department of Health & Human Services, 2010). With one-fourth of all Black women living below the poverty line (U.S. Department of Health and Human Services, 2010), access to and quality of health care are major contributors to the disproportionate burden of disease, disability, and death in this population. However, disparities persist among Black women of higher socioeconomic status (Giscombé & Lobel, 2005; Williams & Collins, 2001). Though findings are somewhat mixed, they generally indicate that Black women are less likely to utilize health care than White women even after adjusting for access (Pescosolido & Boyer, 1999). This pattern suggests that, in addition to economic barriers, there are social barriers to health care utilization and, ultimately, good health among Black women, and possibly also other minorities (Smedley, Stith, & Nelson, 2003).

In the current work, we propose that stereotype threat, or the threat of personally confirming negative group-based stereotypes, serves as one such social barrier. Stereotype threat theory is extremely popular in the social sciences, with hundreds of studies spanning only the last 15 years demonstrating the contribution of stereotype threat to ethnic differences in performance on standardized academic tests as well as in other domains where performance is traditionally assessed (e.g., leadership, sports performance; Stone, Lynch, Sjomeling, & Darley, 1999; also see Inzlicht & Schmader, 2012 for a comprehensive evaluation of stereotype threat effects). Although stereotype threat theory has never been tested within the health sciences, we suggest that the experience of stereotype threat is highly relevant to health and to health care utilization in particular and, compounded over the individual life span and multiple generations, is a plausible contributor to population-level health disparities. We hypothesize that stereotype threat is one social barrier underlying the health decisions, behaviors, and outcomes of Black women, which cumulatively has profound implications for the health of Blacks as a whole. The first of its kind, the present study experimentally tests whether stereotype threat produces different experiences of identical health care settings for Black and White women of varying degrees of ethnic identification.

### **Stereotypes, Threat, and Anxiety**

Stereotypes, like any cognitive shortcut or schema, are thought to be evolved adaptations that facilitate efficient information processing and broader functions related to survival (Fiske & Taylor, 1991). Despite the fact that stereotypes are a natural part of the human experience, they are often harmful in that they overgeneralize the characteristics possessed by groups and their individual members and are highly resistant to disconfirming evidence (Devine & Elliot, 1995; Gilbert & Hixon, 1991; Sidanius & Pratto, 1999). Social and health scientists have demonstrated for decades that discrimination and other types of unfair treatment arising out of negative stereotypes have deleterious consequences for individual group members across many life domains, including mental and physical health, academic achievement, upward social mobility, and the intergenerational transmission of health (David & Collins, 1991; Dominguez, Dunkel Schetter, Glynn, Hobel, & Sandman, 2008; Fordham & Ogbu, 1986; Krieger, 2000; Major & O'Brien, 2005; Settles, Navarette, Pagano, Abdou, & Sidanius, 2010).

It is only in the last two decades, however, that Steele and others have examined a phenomenon termed stereotype threat (e.g., Steele & Aronson, 1995; Steele, Spencer, & Aronson, 2002; Davies, Spencer, & Steele, 2005) as a means of understanding direct links between the stereotypes themselves (as opposed to the discrimination to which stereotypes may lead) and important life outcomes. Stereotype threat is the fear of being judged based on group stereotypes or of confirming negative group-based stereotypes. Countless studies have demonstrated that this fear, or threat, actually leads to underperformance in stereotyped domains and, according to stereotype threat theory, ultimately to avoidance of situations where stereotypes may be relevant (Steele & Aronson, 1995).

Stereotype threat has been studied most commonly among Blacks and primarily within the domain of academic performance. In several studies by Steele and colleagues (e.g., Steele, 1997), Black students underperformed, relative to White students, on a variety of

intelligence tests, but only when stereotypes about Blacks were made salient. A handful of studies have extended these findings to other social groups and the domains within which commonly held stereotypes about these groups exist. For example, Brown and Josephs (1999) demonstrated that females underperformed on a math test after priming the stereotype about the superior quantitative ability of males. We find it important that several studies have demonstrated that even White males, the most dominant social group, experience stereotype threat (Aronson et al., 1999), providing evidence of the potency and generalizability of the stereotype threat phenomenon. More specifically, research by Stone et al. (1999) showed that White males underperformed, relative to Black males, on a golf task (e.g., putting) when stereotypes regarding athletic prowess (as opposed to intellectual ability) were made salient in the environment.

In addition to demonstrating performance decrements as an immediate result of stereotype threat and theorizing about avoidance of stereotyped domains as a long-term consequence of stereotype threat, both theory and research have explored the potential mediating mechanisms underlying the stereotype threat effect. Since Steele and Aronson's (1995) original presentation of stereotype threat theory, anxiety has been highlighted as a central component of the stereotype threat process. For example, in one of the earliest articles on stereotype threat, Steele (1997) likened this threat to a "spotlight anxiety" and suggested that "interfering anxiety" serves as a mediator in the link between stereotypes and poorer outcomes. In this same piece, Steele (1997) also noted that the presence of stereotypes seems to undermine performance more on account of anxiety than on account of a reduced expectancy, or self-fulfilling prophecy, on the part of the individual with the stereotyped identity.

Building on Steele's (1997) ground-breaking introduction to stereotype threat, a large empirical literature, consisting primarily of experimental research, confirms the importance of anxiety in the stereotype threat process. In a study examining potential mediators of stereotype threat, Spencer, Steele, and Quinn (1999) placed male and female undergraduates under varying degrees of stereotype threat (high vs. low) and assessed performance on a math test. Additionally, the researchers assessed participants' feelings of efficacy, evaluation apprehension, and anxiety. In addition to demonstrating the typical stereotype threat results (i.e., women in the stereotype threat condition underperformed relative to women in the no-threat condition and men in both conditions), the researchers also showed that threat was related to heightened levels of anxiety and that anxiety partially mediated the relationship between negative stereotypes and poor test performance. The same could not be said for efficacy or evaluation apprehension, suggesting that anxiety is central to the experience of stereotype threat. Consistent with findings from subjective self-report measures of anxiety, Osborne (2007) similarly demonstrated that anxiety plays a role in stereotype threat using objective physiological measures of anxiety. As with Spencer, Steele, and Quinn (1999), male and female undergraduates were subjected to a difficult math test while under high or low stereotype threat. Measures of arousal, including skin conductance, heart rate, temperature, and blood pressure, were taken. Although there were no significant differences in heart rate based on condition, there were significant differences on the other three physiological indicators of anxiety. Specifically, as stereotype threat theory would predict, women in the stereotype threat condition showed substantial increases in skin conductance

and diastolic blood pressure and decreases in temperature compared with all other groups (i.e., women in the low threat condition, and men in low and high threat conditions). Finally, in a study in which stereotypes about gay men as dangerous to young children were invoked, Bosson and colleagues (2004) showed that gay men displayed more nonverbal anxiety cues (e.g., fidgeting, averting gaze) when interacting with children when their identity was made salient (vs. when it was not). In contrast, heterosexual men were unaffected by condition and did not display the same levels of nonverbal anxiety when interacting with children.

## **Stereotype Threat and Health Care**

Although most of the stereotype threat research has focused on academic and other performance domains (e.g., athletics), we suggest that stereotype threat may also have deleterious effects on health among Black women. Stereotypical perceptions of Black women are highly prevalent within the medical community, leading to the stress of anticipated and actual experiences of biased treatment (e.g., Melfi et al., 2000). An analysis of survey data conducted by van Ryn and Burke (2000) found that physicians felt less affiliation with Black patients compared with White patients. They also believed that their Black patients were less intelligent, more likely to engage in risky health behaviors, and less likely to adhere to treatment recommendations (van Ryn & Burke, 2000). Both quantitative and qualitative research shows that Black women are aware of these stereotypical perceptions held by physicians (Abdou et al., 2010; Giscombé & Lobel, 2005). In fact, Black women report worrying about stereotypes and feeling like doctors and other medical professionals treat them differently because of their race or ethnicity (Lillie-Blanton et al., 2000). There is a growing body of evidence demonstrating the mental and physical health impact on Blacks of these perceptions of unfair treatment arising out of negative group-based stereotypes (Borrell, Kiefe, Williams, Diez-Roux, & Gordon-Larsen, 2006; Dominguez et al., 2008; Williams, Neighbors, & Jackson, 2002), but to date there are no tests of the psychological or physiological consequences of the stereotypes themselves. Applying stereotype threat theory to existing knowledge, Black women should be susceptible to stereotype threat when anticipating seeking medical care or actually visiting a doctor, resulting from the worry of how they will be perceived and treated, particularly when having to disclose personal information about symptoms, health concerns, or potentially relevant behaviors. More specifically, Black women should fear being judged through the lens of negative health-relevant stereotypes regarding their group (e.g., Black women are more likely to engage in risky health behaviors, such as promiscuous sexual behavior), and this should impact their reaction to anticipated and actual health care situations.

Despite common belief that stigma and related perceptions of and mistreatment translate into differential health care experiences (Burgess, Warren, Phelan, Dovidio, & van Ryn, 2010; Schnittker, Pescosolido, & Croghan, 2005), researchers have yet to experimentally examine the role of stereotype threat in health care settings. In examining the phenomenon of stereotype threat relative to health, the current research departs slightly from most research on stereotype threat where the outcome of interest is performance (e.g., scores on a math test, number of free throws made in basketball). Because the health care domain does not involve an examination of performance in the same way that the academic or athletic domains do, we examined women's affective experiences of the health care setting—namely,

anxiety levels while waiting to be seen by the doctor—as our outcome in this initial test of the phenomenon. We propose that, in the face of negative health-relevant stereotypes, Black women will report higher levels of anxiety than their White counterparts.

Importantly, however, according to the original conception of stereotype threat (Steele & Aronson, 1995) and subsequent work by Schmader (e.g., 2002), the affective, cognitive, and/or behavioral consequences of stereotype threat should be observable only for those who are highly identified with either the stereotyped domain or the stereotyped group. Schmader (2002), for example, showed that women who were highly identified with their gender underperformed relative to men on a math test when stereotypes were made salient, but women who were low in gender identity performed equally well as men, even in the presence of the same stereotypes. Although certain lines of research suggest that high ethnic identification can serve as a resilience factor or buffer against race-salient stressors, this does not appear to be the case with stereotype threat (Settles et al., 2010; Steele et al., 2002). The few apparent exceptions to this pattern have been found in studies that actually counter negative group-based stereotypes in some way and, thus, might be regarded as tests of creating stereotype safe environments rather than of stereotype threat. For example, one study by Oyserman and colleagues (Oyserman, Harrison, & Bybee, 2001) found that academic efficacy was highest among Black adolescent girls who believed that being Black was associated with academic achievement and who were strongly identified as Black. This is an important finding for advancing understanding of how to intercept the deleterious effects of stereotype threat; but, importantly, this is not the same as examining the effect of widely held negative group-based stereotypes. Given this, we further predict that the hypothesized stereotype threat effect will be present only among Black women in the experimental condition who are highly identified as Black.

It should be noted that researchers now emphasize that ethnic identity is not a unitary construct and that different components of identity can be differentially related to a variety of outcomes, including health outcomes. In their work on ethnic identity in adolescence, Roberts et al. (1999) isolated two particular components of ethnic identity: The first, termed Affirmation and Belonging, assesses individuals' sense of pride in their ethnic group as well as a sense of attachment to that group. The second component, termed Exploration, assesses individuals' understanding of the impact of their ethnic identity in their lives as well as participation in activities related to the ethnic group. As an exploratory part of the current research, both components of identity were examined to determine whether they function similarly in affecting links between threat and health care-specific anxiety or whether one component is more relevant than the other.

This research has both practical and theoretical implications. Practically, this research may provide new insights into the persistence of health disparities among Black women and possibly also other minority groups. As a result, this work has the potential to inform public policy and intervention at individual and institutional levels. Theoretically, this novel work extends popular stereotype threat research beyond the social sciences, and performance domains in particular, to the health sciences and to broader, nonperformance domains, including domains that are critical to both short- and long-term health and well-being.

## Method

### Participants

Black ( $N = 94$ ) and White ( $N = 68$ ) women were recruited to participate in an online study of “decision-making and health care.” Women were eligible to participate in the present study if they were at least 18 years of age, residing in the United States, and self-identified as either Black or White. Participants ranged in age from 22–82 ( $M = 42.36$ ,  $SD = 12.42$ ). The wide age range of our participants was intentional and reflects recruitment procedures. Participants were recruited and compensated for participation via Study Response Project, an online registry of participants from around the United States, administered by Syracuse University. Study procedures were approved by the Institutional Review Boards at the University of Michigan, the University of Southern California, and Loyola Marymount University.

### Materials

**Stereotype threat manipulation**—Central to the experiment was the manipulation of stereotype threat, or the salience of stereotypes, in the health care setting. Specifically, we wanted women in the experimental condition to be primed to think about: (a) their ethnicity and (b) popularly held negative stereotypes of Black females. To accomplish the first priming goal, participants in the stereotype threat condition completed a demographic questionnaire at the start of the study, where they indicated their ethnicity and completed a measure of ethnic identification.

To prime women to focus on negative stereotypes of Black women, we adapted a method used by Davies, Spencer, and Steele (2005). In that study, participants were exposed to commercials containing overt stereotypical representations of women to test the role of stereotype threat in women’s decisions to take on leadership roles. We, too, wanted to expose participants to explicitly stereotypical images, but wanted to do so within the context of health care. Thus, women in our study were asked to imagine going to see a new doctor (Dr. Campbell), and were asked to wait in a virtual waiting room, which was designed specifically for this study and that was presented on the computer screen. In the stereotype threat condition, the walls of the virtual waiting room displayed posters containing different images and messages relaying common stereotypes of Black females. For example, one poster contained a message about unplanned pregnancy and pictured a young Black pregnant woman. Later, women were asked to imagine entering an examination room. Once again, a virtual examination room was created for participants to view while imagining themselves in an examination room waiting to be seen by Dr. Campbell; and, once again, the room for the stereotype threat condition contained stereotype-relevant posters. Specifically, this room contained a poster picturing a Black baby with the caption: “She has her father’s eyes and her mother’s AIDS—Know HIV & AIDS.” Participants could not advance to the next page of the survey until the posters in the waiting and examination rooms had been viewable on the screen for at least 45 s to standardize the amount of exposure to stereotypical primes. In the no threat condition, the virtual waiting and examination rooms were identical to the threat condition except that the walls were left blank.

**Anxiety**—Given that anxiety is a critical component, both theoretically and practically, of the stereotype threat process (Spencer, Steele, & Quinn, 1999) and potentially of broader links to health disparities, the dependent variable assessed in the present study was participants' affective experience of the experimental health care setting; namely, the degree to which participants reported feeling anxious while waiting for Dr. Campbell in the virtual examination room. Anxiety was measured using Spielberger's State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970). Using a 4-point scale (1 = *Not at all*, 4 = *Very much*), participants completed the state items of the scale, indicating the extent to which they were currently experiencing 20 emotions (e.g., worry, fright, satisfaction). The scale was highly reliable in the overall sample ( $\alpha = .91$ ), as well as for the Black ( $\alpha = .90$ ) and White ( $\alpha = .93$ ) subsamples.

**Control and moderator variables**—As mentioned previously, stereotype threat should affect those who are most highly identified with the domain or the identity in question. Thus, we assessed ethnic identification among all study participants. Specifically, participants completed the 12-item Multi Ethnic Identity Measure (MEIM; Phinney, 1992; Roberts et al., 1999), which assesses participants' belonging or attachment with and exploration of their ethnic group and is appropriate for use with all ethnic groups. The Belonging and Attachment subscale, which assesses pride and attachment, contains seven items, including: "I have a strong sense of belonging to my own ethnic group," and "I am happy that I am a member of the Group I belong to." Scores on this subscale were highly reliable in the overall sample ( $\alpha = .93$ ), as well as for the Black ( $\alpha = .92$ ) and White ( $\alpha = .92$ ) subsamples. The Exploration subscale, which assesses active participation in one's ethnic group as well as an understanding of the role of that identity in one's life, contains five items, including: "I participate in cultural practices of my own group, such as special food, music, or customs," and "I think a lot about how my life will be affected by my ethnic group membership." Scores on this subscale were highly reliable in the overall sample ( $\alpha = .89$ ), as well as for the Black ( $\alpha = .87$ ) and White ( $\alpha = .84$ ) subsamples.

Among the rationale for not using a college sample in this study was the goal of broader representation of socioeconomic status (SES) to more closely resemble the distribution and ethnic patterning of SES in the natural world. Of import to the authors, SES data also enabled us to control for SES to ensure that observed experimental effects were not attributable to SES. Specifically, participants indicated their annual household income using a categorical variable (listed in \$10,000 increments, ranging from \$0 to \$100,000+). Participants also reported the number of individuals (including the self) dependent on that income. Given that both income and household composition are ethnically patterned, per capita income (as opposed to overall household income) was calculated to provide a more realistic assessment of socioeconomic resources within the household. To create estimates of per capita income, the midpoint of the income range was divided by the number of dependents. For example, if a participant indicated that her annual income was \$30,000-\$40,000 and that four people were dependent on that income, the per capita income score was created by dividing \$35,000 by 4. Based on these calculations, the median household income was ~\$60,000 (range: \$5,000 to \$100,000+) for a median household size of three



people (range: 1 to 8) resulting in a median per capita income of \$20,000 (range: \$1,250 to \$75,000).

## Procedure

Upon agreeing to participate in this study, Black and White women were randomly assigned to either the stereotype threat condition or the no threat condition. All participants were told that we hoped to evaluate their health in ways that would be reflective of how it would be evaluated in an actual doctor's office. To do so, participants were told that we would be recreating some of the experiences of visiting a doctor, such as the virtual setting (i.e., the waiting and examination rooms) and the types of questions asked.

Participants were then asked to wait in a waiting room (or actually, to imagine themselves doing so in a virtual waiting room that they were viewing) and to complete some initial questionnaires. Those in the threat condition were exposed to stereotypical images and completed questionnaires highlighting their ethnicity and ethnic identification (as well as a basic intake health questionnaire to be consistent with the ostensible study objectives). Those in the no threat condition were not exposed to the images and completed only the health questions.

Participants then "entered" the examination room and were given a picture and brief bio for Dr. Campbell, the doctor they would see. Across both conditions, Dr. Campbell's information (the picture and biographical information) remained the same. He was a White male who was described as 49 years old and in medical practice for 17 years. In addition, those in the stereotype threat condition were once again exposed to stereotypical images, and those in the no threat condition were not. Next, participants completed the State Anxiety Scale as a way to assess the dependent variable, anxiety level while waiting in the virtual examination room to "see" Dr. Campbell. Finally, those in the no threat condition completed the demographic questionnaire at this point in the study. All participants were debriefed, and they provided an identification number to be paid through the Study Response Project.

## Results

We experimentally examined how anxiety levels while imagining waiting in an examination room for the doctor varied as a function of stereotype threat and degree of ethnic identification among Black and White women. Once again, we predicted that the presence of negative stereotypes of Blacks would affect Black women but not White women, but that the effect among Black women would be moderated by the strength of ethnic identification. More specifically, the stereotype threat effect on affective experiences of the health care setting (i.e., anxiety) was expected among Black women who were in the stereotype threat condition and for whom ethnic identification was strong. We also explored whether different aspects of ethnic identification (i.e., Affirmation and Belonging vs. Exploration) were differentially associated with the experience of stereotype threat. Table 1 presents the basic descriptive statistics for each variable for the entire sample and for Black and White women separately.

Hierarchical linear regression was used to test the hypothesized model predicting anxiety. Step 1 contained the per capita income score, which was mean-centered, as a control variable. Step 2 contained the main effects for each of the three predictors: Condition (threat vs. no threat) and ethnicity were dummy coded and strength of ethnic identification was mean-centered. Step 3 contained each of the two-way interactions, and Finally, Step 4 contained the 3-way interaction of condition, ethnicity, and ethnic identification. The outcome variable was anxiety, as assessed by the Spielberger State Anxiety Scale (Spielberger et al., 1970). This analysis was conducted twice: First, using the Affirmation and Belonging subscale as the operationalization of ethnic identity and, second, using the Exploration subscale for the operationalization of ethnic identification.

The hypothesized three-way interaction among condition, ethnicity, and ethnic identification as assessed via Affirmation and Belonging was not significant. In contrast, the hypothesized three-way interaction among condition, ethnicity, and ethnic identification as assessed via Exploration emerged as significant ( $R^2 = .10$ ,  $R^2 = .03$ ,  $F(1, 148) = 4.50$ ,  $p < .05$ ;  $\beta = .35$ ,  $p < .05$ ). To probe this three-way interaction to ensure that relationships were in the expected directions, we used procedures set forth by Dawson and Richter (2006), which allow for the comparison of pairs of slopes. To begin, we examined the relationship between ethnicity and threat for those who were high in exploration of and participation in their ethnic identity (modeled as  $1 SD$ ). In other words, we compared Slope 1 with Slope 2, as represented in Figure 1. Results showed that the two slopes differed significantly from one another,  $t(148) = 2.07$ ,  $p < .05$ . As can be seen in Figure 1, for those high in ethnic identification, there is no difference in anxiety between Black and White women who do not experience threat. However, as expected, there is a significant ethnic difference in anxiety levels for strongly identified Black and White women who do experience threat, with Black women experiencing more anxiety than White women.

Next, we examined the relationship between ethnicity and threat for those who were low in exploration of and participation in their ethnic identity (modeled as  $-1 SD$ ). In other words, we compared Slope 3 with Slope 4, as represented in Figure 1. Consistent with study predictions, results showed that the two slopes did not differ from one another,  $t(148) = -.81$ ,  $ns$ . As can be seen in Figure 1, for those low in ethnic identification, there is no difference in anxiety based on ethnicity or condition.

## Discussion

The first of its kind, the present study sought to empirically apply the popular social science theory of stereotype threat to the health sciences. Ample evidence exists of social barriers, beyond economic barriers, to health care utilization and good health among Black women relative to White women. Proposing a new research area, we hypothesized that stereotype threat, the threat of being judged by or of personally confirming negative group-based stereotypes, is a critical, overlooked social determinant of health-related decisions and behaviors as well as of larger health disparities among Black women. Consistent with study hypotheses and stereotype threat theory, Black women in the stereotype threat condition who were strongly identified as Black reported significantly greater anxiety in the experimental health care setting than all other women. The present study is the first to extend stereotype

threat theory beyond its traditional application in performance domains and experimentally test whether stereotype threat produces different affective experiences of identical health care settings for Black and White women with varying degrees of ethnic identification. This innovative study provides a basis for generating a research area with the potential to provide new insights into the persistence of health disparities among Black women, and likely other minorities, and to inform public policy and individual- and institutional-level intervention.

The finding that Black women exhibiting high ethnic identification were affected by stereotype threat (in terms of experiencing anxiety in response to a health care situation) was consistent with the central hypothesis of the present study and broader stereotype threat theory (e.g., Schmader, 2002). Although strong ethnic identification was expected to be central to the observed health care-related stereotype threat effect, we had no a priori hypothesis regarding whether one dimension of the ethnic identification measure (Affirmation and Belonging vs. Exploration) would be more relevant than the other or whether both dimensions would be equally important. The Exploration dimension of ethnic identification, rather than the Affirmation and Belonging dimension, drove the stereotype threat effects observed in the present study. At face value, the Affirmation and Belonging subscale appears to focus on more subjective attitudes toward one's ethnic group (e.g., "I am happy that I am a member of the group that I belong to," and "I have a clear sense of my ethnic background and what it means to me."), whereas the Exploration subscale appears to focus on more objective behaviors that reflect active engagement with one's ethnic group (e.g., "I have spent time trying to learn more about my ethnic group, such as its history, traditions, and customs," and "To learn more about my ethnic background, I have often talked to other people about my ethnic group."). In the case of stereotype threat, it may be that actual behaviors relative to one's ethnic group are better measures of strong ethnic identification and the centrality of ethnic identity to the self-concept, thereby exerting greater influence in terms of susceptibility to stereotype threat effects in health care settings and possibly also within other domains.

One final, related note is that the White women in the present study were lower in overall ethnic identification relative to the Black women. This was expected based on existing theoretical and empirical work. Notably, however, this ethnic difference was considerably more pronounced for the Exploration subscale than for the Affirmation and Belonging subscale (shown in Table 1). It has been suggested that social identities, such as ethnic identity, do not hold the same significance in the lives of majority group members as they do in the lives of minority group members, such as ethnic minorities (Roberts et al., 1999). Thus, the varying magnitude of these ethnic difference may, again, underscore the difference between feeling a strong sense of ethnic identification and actively engaging in practices that reflect a strong sense of ethnic identification and the social and psychological meanings into which this translates in day-to-day lived experiences.

Findings of the present study are particularly strong in light of the hypothetical health situation and virtual health care setting. We expect that the stereotype threat effect would be significantly stronger in experiments conducted in real-world health care settings (e.g., the health department, hospitals, family planning, and prenatal clinics), as well as in "real" health care situations, particularly in diagnostic and treatment situations where the

unknowns and outcomes have serious psychological, physical, and social ramifications. Based on this, it is expected that the present study provides a conservative estimate of the impact of stereotype threat on the qualitatively different ways in which Black and White women can experience identical health care settings.

As an initial step in this new area of research, the present study focused on the proximal affective consequence of stereotype threat that is most commonly discussed in the stereotype threat literature—namely, anxiety. Because it is a critical aspect, both theoretically and practically, of the stereotype threat experience, the outcome of anxiety is essential to this first step in testing the applicability of stereotype threat to the health domain (Spencer, Steele, & Quinn, 1999). Anxiety is an important short-term affective outcome and is related to appraisal of experiences as stressful and/or threatening, both of which have important immediate psychological, physiological, cognitive, and behavioral consequences. Anxiety and its various psychological and physiological consequences, particularly when prolonged or experienced repeatedly, are clearly linked to longer-term morbidity and mortality as well as the differential burdens of morbidity and mortality faced by Blacks and other stigmatized minority groups.

Although this study, and assessment of the outcome of anxiety specifically, is a critical first step in a new area of research, it is limited in that it provides a relatively narrow view of the possible consequences of stereotype threat in the health domain. Future studies will be needed to broaden our understanding of stereotype threat and its relation to health and health disparities. Next steps are to examine additional affective outcomes that are likely to result from health-related stereotype threat, including additional indicators of stress (e.g., perceived stress); relational consequences of stereotype threat, particularly physician trust; cognitive consequences of stereotype threat, including health-related decisions, particularly decisions surrounding health care utilization (e.g., for pregnant women, early initiation of prenatal care); behavioral consequences of health-related stereotype threat, including use of preventive care (for women, annual pap testing; for children, well baby visits); and, finally, disparities in short- and long-term health outcomes, which can be linked to experiences of stereotype threat. In terms of future research evaluating more immediate affective outcomes of health-related stereotype threat (as opposed to longer-term mental health disparities), it will be interesting and important to include objective measures of stress, including biological and neural underpinnings of the stereotype threat effect. Given our expectation, and corroborating findings, that stereotype threat occurs when the individual is highly identified with the stereotyped social identity (e.g., ethnic identity is central to the self-concept; cf. Oyserman et al., 2001; Schmader, 2002; Steele et al., 2002), we posit that the effects of stereotype threat are mediated by the stress-responsive physiological systems that are invoked during any form of social evaluative threat that brings into question important aspects of the self (e.g., Dickerson, Gruenewald, & Kemeny, 2004); namely the hypothalamic-pituitary-adrenocortical (HPA) axis, which regulates the release of the stress hormone cortisol, and the sympathetic-adrenal-medullary system, which governs autonomic functions. HPA and sympathetic dysregulation, and other indicators of allostatic load, are increasingly linked to many of the stress-sensitive morbidities disproportionately faced by Blacks and other minorities, including preterm birth, asthma, diabetes, and atherosclerosis (Lu & Halfon, 2003; McEwen & Seeman, 1999). Future research is needed to evaluate this

empirical question and, in particular, should examine objective stress measures related to these physiological systems (i.e., cortisol, proinflammatory cytokines, catecholamines, blood pressure, and heart rate) in relation to stereotype threat activation in health care settings.

To our knowledge, there are no existing stereotype threat studies directly evaluating long-term disidentification with academic or other performance domains. Nevertheless, it is believed that repeated exposure to stereotype threat leads to disidentification with the stereotyped domain over time. This issue of disidentification is critical to the health domain, but it is less clear what disidentification looks like in nonperformance domains, particularly one that is so central to survival, as in the case of health care and health more broadly. We suspect that both the immediate experience of stereotype threat and the longer-term consequences that may underlie disidentification are less relevant in acute medical situations (e.g., cardiac arrest, accidents) and more relevant to preventive measures (e.g., mammography and other cancer screenings, HIV testing) as well as to chronic conditions (e.g., HIV, diabetes) and ambiguous medical situations (e.g., symptoms that can be ignored and/or attributed to stress). We expect that there are both proximal and distal consequences of stereotype threat that may be indicative of disidentification within the health domain and that can be observed over the course of the individual life span as well as across multiple generations, potentially resulting in the population-level health disparities observed among Blacks and other stigmatized minority groups.

Future studies investigating methods for creating “stereotype safe” health care settings will be of great value, both for their scientific and their practical contributions. Based on existing studies, including Davies, Spencer, and Steele (2005), it appears that stereotype safe settings can be created either deliberately (e.g., by telling participants that diversity is celebrated in the relevant environment) or symbolically (e.g., by presenting a diverse medical staff). Research is needed to test these interventions to ascertain whether they generalize to settings where traditional measures of performance are not applicable.

One final direction for future research will be moving to community settings to test stereotype effects, and the amelioration of these effects using stereotype safe settings, across different realworld contexts and minority populations, including among Black men, men and women of Arab- and Latino-origin in the United States, sexual minorities, and, finally, also using cross-national comparisons of studies of health equity in both the developed and developing world.

## Conclusion

The present study represents a first step in a new area of research examining stereotype threat as a critical social determinant of health care experiences and outcomes among Black women. Findings from this study provide an additional, as yet overlooked, explanation for ethnic health disparities. Scholars and lay people alike have eagerly embraced stereotype threat as an explanation for ethnic disparities in standardized testing. We propose that very similar processes are at work within the domain of health and, with the present study, introduce the first set of empirical findings in support of this hypothesis. This work is also theoretically significant in that it extends stereotype threat research, a very popular line of

inquiry in the experimental sciences, beyond its traditional paradigm. Although stereotype threat is defined in broad terms, most of the research has focused on performance in academic or athletic domains. The proposed research examines stereotype threat in a nonperformance context and, thus, adds to the generalizability and theoretical validity of the stereotype threat phenomenon. This first study achieved the objective of establishing the existence of stereotype threat within the domain of health care. Nevertheless, additional studies measuring subjective experiences of health care settings beyond anxiety, as well as objective physiological, cognitive, and behavioral health-related outcomes, are needed. Finally, there are highly significant practical implications of the present findings and the broader research area that we hope they will generate. This research provides new insights into the persistence of health disparities among Black women, and is likely to apply to Black men and other minority groups as well. In identifying an important, and addressable, social barrier to health care utilization and good health more broadly, this work has the potential to inform public policy and relatively low-cost interventions targeting individuals, including physicians and patients, and institutions, particularly those that provide health care and education.

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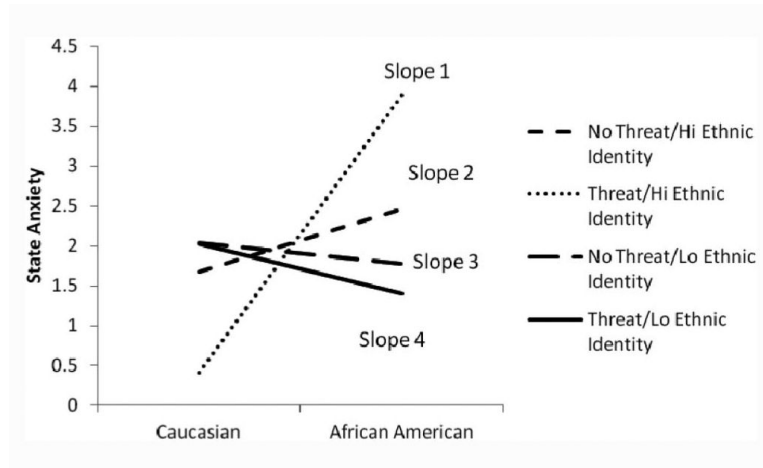
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**Figure 1.** Anxiety as a function of ethnicity, strength of ethnic identification (Exploration subscale), and presence of stereotype threat.

Table 1

## Descriptive Statistics for Key Variables

	<i>N</i>	Affirmation and Belonging			Exploration			STAI		
		<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
All participants	162	3.94	0.84	1.57–5.00	3.24	1.14	1.00–5.00	1.99	0.59	1.00–3.75
Black	94	4.21	0.73	1.71–5.00	3.72	0.99	1.00–5.00	1.99	0.61	1.00–3.75
White	68	3.57	0.83	1.57–5.00	2.58	0.99	1.00–4.60	2.00	0.57	1.00–3.35

*Note.* STAI = State-Trait Anxiety Inventory.