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## A comparison of race-related pain stereotypes held by White and Black individuals

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### Abstract

Pain judgments are the basis for pain management. The purpose of this study was to assess Black and White participants' race-related pain stereotypes. Undergraduates ( $n=551$ ) rated the pain sensitivity and willingness to report pain for the typical Black person, White person, and themselves. Participants, regardless of race, rated the typical White person as being more pain sensitive and more willing to report pain than the typical Black person. White participants rated themselves as less sensitive and less willing to report pain than same-race peers; however, Black participants rated themselves as more pain sensitive and more willing to report pain than same-race peers. These findings highlight similarities and differences in racial stereotypic pain beliefs held by Black and White individuals.

### Keywords

Pain stereotypes; RE PQ; Race differences

### Introduction

Pain is the number one reason why individuals seek healthcare in the U.S., accounting for 80% of all physician visits (Gatchel, Peng, Peters, Fuchs, & Turk, 2007). Pain assessment and treatment rely on laypersons' and providers' judgments of pain in others. Although clinical guidelines indicate that patient demographic characteristics, such as race, should not guide pain management decisions (Edwards, Fillingim, & Keefe, 2001; Green et al., 2003), studies have found that pain care often varies between Black and White patients (Hirsh et al., 2013; Hollingshead, Matthias, Bair, & Hirsh, 2014; Meghani, Byun, & Gallagher, 2012). Stereotypes about racial differences in pain sensitivity may contribute to suboptimal pain care for Black patients and could affect an individuals' pain experience (Tait & Chibnall, 2014; Trawalter, Hoffman, & Waytz, 2012). For instance, stereotypical gender beliefs about

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pain influenced participants' own sensitivity to experimentally-induced pain (Robinson, Wise, Gagnon, Fillingim, & Price, 2004; Robinson et al., 2001; Wise et al., 2002) as well as their judgments of pain in others (Robinson & Wise, 2003).

The Race/Ethnicity Expectations of Pain Questionnaire (REPQ) was developed to assess stereotypical beliefs about pain across racial/ethnic groups (Wandner, Scipio, Hirsh, Torres, & Robinson, 2012). The REPQ asks respondents to rate their stereotypical pain expectations of "typical" members of different racial/ethnic groups. A previous study provided psychometric support for the REPQ, indicating its use in studies examining race-related stereotypes in pain judgments (Wandner et al., 2012). The initial study also found that participants rated the typical White person as more sensitive to pain than the typical Black person, and the typical White person as more willing to report pain than the typical Black person (Wandner et al., 2012). However, because that study was small and included mostly non-Hispanic White participants, it could not speak to whether this stereotype is endorsed by members of diverse racial groups.

The belief that Black people feel less pain than Whites has previously been documented in laypersons, children, and nurses, as well as Black participants (Dore, Hoffman, Lillard, & Trawalter, 2014; Trawalter et al., 2012). For instance, Trawalter et al., (2012) found that White and Black participants assigned lower pain ratings to Black athletes relative to White athletes. Race-related pain stereotypes can also influence individuals' decisions to seek pain treatment. Beliefs about the appropriateness of help-seeking behavior may lead to delayed pain care, especially for Black persons where social norms emphasize stoicism and toughness (Black & Woods-Giscombe, 2012). Thus, additional investigations of race-related pain stereotypes may shed light on racial differences in pain experiences and decisions to seek care.

The REPQ also inquires about participants' own pain expectations. Two previous studies found evidence of gender-related pain stereotypes. Specifically, female participants rated themselves as less willing to report pain compared to the typical woman, whereas male participants rated themselves as having similar pain experiences to the typical man (Robinson, George, et al., 2004; Wise et al., 2002). Among women, being less willing to report pain than the typical woman may be considered a positive attribute given negative stereotypes about the physical weakness and fragility of women (Glick & Fiske, 2001). Men, on the other hand, are not subject to such a negative stereotype and, thus, may be less motivated to view themselves more positively than the typical man when it comes to reporting pain. Among many racial and cultural groups, including African Americans, stoicism in the face of pain is revered (Meghani & Houldin, 2007), suggesting that being less sensitive to and less willing to report pain are considered positive attributes.

In the current study, we used the REPQ to examine race-related pain stereotypes for White and Black participants. We also examined how participants' self-ratings corresponded with their pain stereotypes about "typical" others, in order to explore whether these patterns were consistent between racial groups. Based on previous investigations, we hypothesized that both White and Black participants would rate the typical Black person as being less pain sensitive and less likely to report pain than the typical White person. Given the lack of

previous research on pain stereotypes, we did not specify a priori hypotheses for participants' self-ratings.

## Methods

### Participants

Participants were undergraduate students ( $N=551$ ) enrolled at Indiana University – Purdue University Indianapolis (IUPUI). Participants were eligible if they were at least 18 years of age. Students were recruited through a university-based online recruitment system. Interested participants were either provided a link to complete the study online or were contacted by study personnel via email to set up a time to complete the study in our laboratory. Average age of the sample was 21.25 years ( $SD=5.6$ ). The sample was 77% female, 75% non-Hispanic White, and 25% non-Hispanic Black.

### Procedure

The majority of participants ( $n=471$ ) completed the study online via a personal computer for course credit. To increase the diversity of our sample, additional Black participants ( $n=80$ ) were included from an in-person laboratory study. Participants in the laboratory study completed the questionnaires on the same web-based platform as the one used by online participants. Laboratory participants completed the questionnaires in a private room prior to undergoing any other study procedures (unrelated to the current study). All participants provided informed consent and completed a demographic questionnaire prior to completing the REPQ. Both studies received ethical approval from IUPUI (IRB Study #1303010875 and #1201007762).

### Measures

The REPQ uses visual analogue scales (VASs) to assess respondents' views of the pain sensitivity (0 = Not at all sensitive; 100 = Most sensitive imaginable) and willingness to report pain (0 = Not at all willing; 100 = Most willing imaginable) of the typical Asian, Hispanic, Black and White person. Participants also rated their own pain sensitivity and willingness to report pain.

### Statistical analyses

Given our bi-racial sample and the fact that a majority of the relevant literature focused on differences between Black and White individuals, we only included participants' ratings of the typical Black and White person. Crosstabulation analyses were used to examine differences in gender composition between racial groups and experimental settings. Descriptive statistics were used to summarize the sample's demographic characteristics and average responses to each item. Cronbach's alpha was calculated as a reliability estimate for the questionnaire (measure of consistency across items,  $\alpha > .70$  = adequate).

Dependent samples *t*-tests were run to examine (1) all participants' ratings of the typical White and Black person, (2) White participants' ratings of the typical White and Black person, and (3) Black participants' ratings of the typical White and Black person. Dependent samples *t*-tests were run separately for White and Black participants to compare

participants' self-ratings to their ratings of same-race peers; these analyses allowed us to explore whether response patterns were consistent between racial groups. Effect sizes were calculated for significant results using Cohen's  $d_z$  for dependent samples formula based on the standard deviation of the difference in ratings (.20 = small effect, .50 = medium effect, .08 = large effect). The above analyses were performed using SPSS version 22.

## Results

The gender ratio was equivalent among White and Black participants ( $\chi^2(1, N=551)=0.31, p=.58$ ) and experimental settings ( $\chi^2(1, N=551)=0.49, p=.29$ ). Descriptive information was calculated for the total sample and separately for White and Black participants (Table 1). Cronbach's alpha indicated acceptable internal consistency for the measure ( $\alpha=.78$ ).

### Pain Judgments

Overall, participants rated the typical White person as more sensitive to pain and more willing to report pain than the typical Black person ( $t(550)=9.85, p<.001, d_z=.42$ ;  $t(550)=14.62, p<.001, d_z=.62$ , respectively);

When we separately analyzed participants' ratings by race, White and Black participants demonstrated a similar pattern to that reported above for the total sample. White participants rated the typical White person as being more sensitive to pain and more willing to report pain than the typical Black person ( $t(415)=9.72, p<.001, d_z=.48$ ;  $t(415)=12.50, p<.001, d_z=.61$ , respectively). Similarly, Black participants rated the typical White person as being more sensitive to pain and more willing to report pain than the typical Black person ( $t(134)=3.48, p<.01, d_z=.30$ ;  $t(134)=7.58, p<.001, d_z=.65$ , respectively).

### Self-Ratings

We compared White and Black participants' ratings for self across racial groups. White participants rated themselves as being more sensitive and more willing to report pain than the typical Black person ( $t(415)=4.89, p<.001, d_z=.24$ ;  $t(415)=3.99, p<.001, d_z=.20$ , respectively), which is consistent with the finding that Black participants rated themselves as being less sensitive and less willing to report pain than the typical White person ( $t(135)=2.64, p<.05, d_z=.23$ ;  $t(135)=4.59, p<.001, d_z=.40$ , respectively).

We then compared participants' self-ratings to ratings for their respective peer group. White participants rated themselves as being less sensitive and less willing to report pain than the typical White person ( $t(415)=4.94, p<.001, d_z=.24$ ;  $t(415)=9.48, p<.001, d_z=.47$ , respectively). In contrast, Black participants rated themselves as being more willing to report pain than the typical Black person ( $t(135)=2.86, p<.05, d_z=.25$ ) but not significantly different than the typical Black person in terms of pain sensitivity ( $p=.28, d_z=.09$ ). Notably, the mean values for pain sensitivity were consistent with those for willingness to report pain, such that Black participants rated themselves as more sensitive to pain than the typical Black person.

## Discussion

Race-related stereotypes about pain may influence individuals' responses to pain and providers' clinical decisions. This study found that White and Black participants perceived the typical White person to be more pain sensitive and more willing to report pain than the typical Black person. Between-race comparisons indicated that White participants rated themselves as less pain tolerant than the typical Black person, and Black participants rated themselves as more pain tolerant than the typical White person. Same-race comparisons indicated that White participants rated themselves as significantly less pain sensitive and less willing to report pain when compared to ratings for White peers, whereas we found Black participants rated themselves as slightly more pain sensitive and significantly more willing to report pain when compared to Black peers.

Overall, we found that "typical" White persons were judged – by their same-race peers and by Black participants – to be more pain sensitive and more likely to report pain than "typical" Black persons. Taken together, these findings suggest that White and Black laypersons endorse similar race-related pain stereotypes. This is consistent with two previous investigations, which found that White and Black children and adults believed that Black people feel less pain than White people (Dore et al., 2014; Trawalter et al., 2012). Nurses also endorsed similar race-related pain stereotypes (Trawalter et al., 2012). These pain stereotypes are interesting when considered in light of clinical and experimental studies that found Black persons are less pain tolerant than White persons (Edwards et al., 2001; Green et al., 2003). This inconsistency between race-related pain stereotypes and actual pain experience may contribute to the underassessment and undertreatment of pain in Black patients (Meghani et al., 2012; Staton et al., 2007). Furthermore, our findings suggest that these pain stereotypes may be endorsed by both White and racial minority providers. Should future studies find similar pain stereotypes in providers, it may inform educational and intervention efforts aimed at improving pain care for racially/ethnically diverse patients. Such efforts may need to first acknowledge that all providers, regardless of racial/ethnic background, likely hold race-related pain stereotypes, and second enhance providers' perspective-taking ability for patients who are racially/ethnically different from them. Previous studies suggest that both approaches (explicitly acknowledging the existence of stereotypes and engaging in strategies to enhance perspective-taking) are effective in reducing stereotypes and improving interactions among racially/ethnically diverse individuals (Burgess, Fu, & van Ryn, 2004; Galinsky & Moskowitz, 2000).

White participants rated themselves as less sensitive to pain and less willing to report pain when comparing themselves to the typical White person. This finding aligns with previous, non-pain-related studies have found that individuals across demographic groups tend to view themselves more positively than peers when it comes to personality traits, risk of misfortune, and conformance to social norms (Alicke & Govorun, 2003). Therefore, it is interesting that Black participants in the current study did not display the same pattern of self-other ratings as did White participants. In fact, Black participants rated themselves as more pain sensitive and more willing to report pain than the typical Black person.

One possible explanation for this difference is that White individuals perceive a lower willingness to report pain as a positive attribute, whereas Black individuals do not share this favorable perception. Given historical discrimination in the healthcare setting in general (Institute of Medicine, 2009) and for pain care in particular (Anderson, Green, & Payne, 2009; Tait & Chibnall, 2014), Black people may be less willing to report pain because they believe their pain complaints will be discounted or dismissed, especially by healthcare providers. Therefore, not reporting pain may be less about being “tough” or stoic – generally considered positive traits – and more about avoiding discrimination and/or engaging in behaviors that are perceived to be more adaptive. This finding could also be related to our sample of Black college undergraduates. Among the general public, Black individuals are twice as likely to be uninsured as Whites (Institute of Medicine, 2009). However, because our sample consisted of college students who likely have access to a greater diversity of insurance and/or healthcare options (e.g., parental insurance coverage, on-campus health centers), one might expect them to rate themselves as more willing to report pain than the typical Black person who has less access. This interpretation is consistent with findings that the availability of care influences one’s willingness to report a need for and seek it (Andersen, 1995).

Although differences did not reach statistical significance, the mean ratings indicated that Black participants also perceived themselves to be more pain sensitive than the typical Black person. One speculative reason for this finding is that Black participants internalized the stereotype that Black people possess “superhuman” characteristics. Recent evidence suggests that White laypersons and medical students believe Blacks possess biological features and personal attributes beyond normal human characteristics, which is reinforced through portrayals of Blacks in athletics and the media (Hoffman, Trawalter, Axt, & Oliver, 2016; Waytz, Hoffman, & Trawalter, 2014). White participants who held these beliefs were more likely to rate the pain of Black individuals as lower than the pain of White peers (Hoffman et al., 2016; Waytz et al., 2014). Related to our findings and others’ that Blacks believe they are more pain tolerant than Whites (Dore et al., 2014; Trawalter et al., 2012), it is reasonable to suspect that Black persons also internalize these stereotypes about superhuman attributes. Thus, Blacks may perceive other (i.e., “typical”) Black persons to be superhuman, while at the same time being aware of their own “human” experiences and limitations coping with stressors such as pain. Research should further examine the factors that influence Black individuals’ pain-related judgments of self and same-race peers, as this information may provide insight into Black individuals’ pain sensitivity and help-seeking behaviors.

One study limitation is that the sample was predominately young adult women at a single metropolitan university in the Midwest. Also, we reported on pain judgments of undergraduate students who are likely not receiving or providing pain care. Therefore, our findings may not generalize to healthcare providers. Future investigations should examine whether similar race-related pain stereotypes are held among healthcare providers and the extent to which such beliefs influence pain care.

Although our sample consisted of laypersons, these results may have important clinical implications. It is reasonable to speculate that healthcare providers hold the same belief that



the typical White person is more pain sensitive and more willing to report pain than the typical Black person, which may result in differential pain care for White and Black patients. Indeed, these stereotypes may help explain the race-related pain disparities that are well documented in the literature (Meghani et al., 2012). Furthermore, a Black patient seeking pain care may contradict providers' beliefs that Black patients are less likely to report pain. This discrepancy could make pain care, which is already cognitively demanding and ambiguous (Chen, Fagan, Diaz, & Reinert, 2007; Matthias et al., 2010), even more challenging when treating Black patients. Such cognitive and emotional demands may activate implicit racial biases (Sherman, Macrae, & Bodenhausen, 2000), which then influence decision-making and lead to unequal pain care (Burgess et al., 2014; Tait & Chibnall, 2014).

This investigation found White and Black participants reported similar race-related pain stereotypes but showed different response patterns when comparing themselves to same-race peers. Future investigations should examine if these pain stereotypes are held by healthcare providers and the extent to which they contribute to racial disparities in pain care. Future investigations should also examine whether Black individuals' stereotypical pain beliefs influence their pain experience and help-seeking behavior.

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**Table 1**

Descriptive statistics for the Race/Ethnicity Expectations of Pain Questionnaire

Items		Total (n=551)	White (n=416)	Black (n=135)
Domain	Individual Items	Mean (SD)	Mean (SD)	Mean (SD)
Sensitivity	1. What is the typical Black person's sensitivity to pain	45.3(20.3)	45.1(19.8)	45.9(22.0)
	2. What is the typical White person's sensitivity to pain	55.9(18.6)	56.2(16.6)	55.1(23.9)
	3. Your sensitivity to pain is	50.5(21.6)	51.3(21.2)	47.8(22.7)
Willingness	4. What is the typical Black person's willingness to report pain	44.1(25.9)	44.5(25.7)	42.8(26.6)
	5. What is the typical White person's willingness to report pain	62.1(22.1)	62.1(21.1)	62.3(25.3)
	6. Your willingness to report pain is	50.6(25.4)	50.8(24.5)	49.9(28.2)

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