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## Report

## The psychological sting of stigma: The costs of attributing ostracism to racism

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## ABSTRACT

Laboratory-based research with university students demonstrates that ostracism is reflexively painful, depletes fundamental needs, and is highly resistant to variations in situational context or individual differences. Employing a representative sample of 614 US White and African American adults, we sought to (1) demonstrate the utility of using Cyberball on a broader non-college sample, and examine (2) whether attributing ostracism to racial prejudice mediates recovery. Participants in an Internet version of Cyberball were either included or ostracized by two other players (both White or both Black), and reported their level of distress before and after making attributions for treatment during the game. Overall, reflexive needs were threatened by ostracism, but more so for Blacks. Whites attributed ostracism to racism when the other players were Black. Blacks attributed ostracism to racism when the other players were White or Black. Within a few minutes, participants reported feeling less distress, but attributing ostracism to racial prejudice impeded their recovery.

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“The fact remains that exclusion, rejection, and a stigmatized status are not desired and are not voluntary states.”

Kenneth B. Clark (1965) *Dark Ghetto: Dilemmas of Social Power*

## Introduction

More than half a century has passed since Kenneth and Mamie Clark conducted their now famous “doll studies” suggesting that members of stigmatized groups may internalize societal prejudice with implications for self-worth. All else being equal, people who are stigmatized—including members of racial and ethnic groups (Sigelman & Singleton, 1986; Steele & Aronson, 1995)—are more likely to experience social ostracism (Kurzban & Leary, 2001). Indeed, it was the social exclusion associated with racial prejudice that the Clarks and others argued was at the root of Blacks’ psychological suffering. Interestingly, theory and research on discrimination and ostracism have evolved relatively independently (Smart Richman & Leary, 2009). Recent research suggests that immediate—or reflexive—reactions to ostracism are robustly painful and subject to few if any moderators. In contrast, post-evaluative—or reflective—reactions suggest that people cope with ostracism to varying degrees as a function of individual differences and social context. Stigma research suggests that belonging to stigmatized groups may incur both costs (e.g., increased sensitivity to social rejection) and benefits (e.g., attributional ambiguity) when it

comes to rejection (see Major, 2006 for review). Our research explores whether belonging to a stigmatized racial group moderates reflexive versus reflective reactions to ostracism. In addition, we consider whether attributing ostracism to prejudice mediates coping with ostracism.

*Stigma, attribution, and self-esteem*

Despite the intuitive conclusion that stigma is necessarily harmful, contemporary research paints a complex picture of the relationship between stigma and psychological harm (Major, Quinton, & McCoy, 2002). The consequences of stigma depend, in part, on how people explain their outcomes. Some research suggests that the attributional ambiguity associated with stigma has psychological benefits; attributing negative outcomes to prejudice affords externalizing negative feedback and thereby protects self-esteem (Crocker & Major, 1989). Other research suggests that attributing negative outcomes to prejudice is harmful in and of itself, owing to the link between group-esteem and self-esteem (e.g., Branscombe, Schmitt, & Harvey, 1999; Schmitt & Branscombe, 2002a, 2002b). Still other research demonstrates that attributional ambiguity undermines the benefits of positive outcomes. People distrust positive feedback when it can be explained by others’ prejudices or their desires to avoid appearing prejudiced (e.g., Crocker, Vokel, Testa, & Major, 1991).

Crocker, Major, and colleagues first observed evidence that attributing negative outcomes to prejudice might protect self-esteem. Participants in their studies believed they had been rejected or accepted by another participant; attributional ambiguity was

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manipulated by participants' understanding of whether the other participant was (not) aware of a stigmatized status. For example, in a now classic study, White and African American college students believed a White peer who could (or could not) see them through a one-way mirror rejected them (Crocker et al., 1991). As predicted, African American students were more likely to attribute rejection to prejudice when they believed they could (rather than could not) be seen. Paralleling this result, African American students' self-esteem suffered from negative feedback only when they could not be seen by the evaluator, suggesting that attributing negative feedback to prejudice buffered threats to self-esteem.

Attributing positive, rather than negative, outcomes to prejudice can harm, rather than protect, self-esteem. People who are stigmatized discount positive feedback or perceive it as over-correcting for racial bias (e.g., Cohen, Steele, & Ross, 1999). For example, African American students in Crocker et al.'s research experienced a decrease in self-esteem (relative to baseline taken at pretest) when they believed they had been socially accepted and acceptance potentially could be attributed to racial prejudice.

Only one study to date has examined the effects of social rejection for both individuals who do not belong to a stigmatized racial group. Mendes, Major, McCoy, and Blascovich (2008) provided White and Black college students with feedback (acceptance versus rejection) from a confederate evaluator who was of same or different race. Whereas rejections in general resulted in more adverse physiological responses and performance outcomes, different-race rejections were more detrimental than same-race rejections, and were more likely to be attributed to discrimination and prejudice (although this effect was marginal for White participants). Thus, both White and Black participants were more likely to attribute rejection to discrimination and prejudice when they had been rejected by racial out-group members.

#### *Ostracism: reflexive versus reflective reactions*

Recent research on ostracism reveals an interesting temporal effect that could shed further light on the relationship between stigmatized group membership and satisfaction of basic needs, including self-esteem. Specifically, findings point to an important distinction between spontaneous or *reflexive* reactions to ostracism versus more *reflective* responses that occur after time has passed (Williams, 2007, 2009).

#### *Robust reflexive reactions*

Not surprisingly, ostracism hurts. People who experience ostracism report significant loss of need fulfillment, including a decreased sense of belonging, and reduced self-esteem, existential meaning, and sense of personal control (Zadro, Williams, & Richardson, 2004). What is surprising, however, is the robust nature of ostracism's effects (Williams, 2009). Not only do these negative effects appear immediately and in response to a brief episode, but also contextual and individual difference (including social category memberships, like gender) moderators of these effects remain elusive. People report feeling immediately hurt by ostracism, even when these feelings are clearly irrational. For example, participants report feeling equally stung by ostracism when it is intentional or unintentional, when ostracizers are either computer programmed or humans (Zadro et al., 2004), or when ostracism occurs because of technical problems (Eisenberger, Lieberman, & Williams, 2003).

Germane to the current research, people report feeling just as bad when ostracized by people they loathe as by people they like. Gonsalkorale and Williams (2007) asked college students to play a computerized game of toss – Cyberball—with two other players alleged to belong to either a despised out-group (the Australian KKK), a political in-group, or a rival political out-group. Participants were either *ostracized* (receiving the ball only once) or *in-*

*cluded* (receiving the ball roughly one-third of the time). Despite reporting more negative attitudes toward players who belonged to the despised out-group, affect and need fulfillment during the game were unaffected by who had ostracized participants. In a follow-up study, Gonsalkorale, Carter-Sowell, Sloan, and Williams (2008) replicated these findings with African American students at a historically Black college in the United States. Even though African Americans are the targets of hate by the KKK in the United States, ostracism by the KKK was as painful as ostracism by in-group members.

#### *Moderated reflective responses*

Fortunately, time appears to heal the pain of ostracism, at least for most people. In studies using the Cyberball paradigm, for example, the negative consequences of ostracism abate when people have an opportunity to reflect upon their experiences. It takes little time to reflect and show recovery. In fact, need fulfillment can show significant return to baseline in as little as 1 min (Wirth & Williams, 2009). Unlike reflexive reactions to ostracism which appear insensitive to context and individual differences, coping with ostracism is moderated by such factors. For example, individuals who are chronically socially anxious do not appear to rebound from ostracism as fully as do individuals who are not highly socially anxious (Oaten, Williams, Jones, & Zadro, 2008; Zadro, Boland, & Richardson, 2006).

#### *Could belonging to a stigmatized group moderate reactions to ostracism?*

Given the robust effects of ostracism for esteem-related needs, the association between ostracism and stigmatized group membership, and previous research demonstrating the importance of attributions to prejudice in coping with stigma, it is theoretically and empirically important to consider whether stigmatized identity qualifies how people respond to and cope with ostracism. Note that although the term identity has been used elsewhere to refer to the strength of identification with a given social group, we use the term here to refer more simply to self-identification with a given social category.

Stigmatized identity may not protect individuals from the reflexive pain of ostracism. Because reflexive reactions occur spontaneously, before deliberative evaluation of the situation, members of stigmatized groups may experience the immediate pain of ostracism even if they attribute it to racism. Indeed, there are several reasons to hypothesize, instead, that stigmatized identity could *increase* the immediate pain of ostracism.

First, personal history with ostracism and risk for rejection sensitivity could increase the magnitude of the immediate pain of rejection for stigmatized individuals. Members of stigmatized groups experience events they would attribute to prejudice frequently (Hyers, 2007; Swim, Hyers, Cohen, Fitzgerald, & Bylsma, 2003), underscoring greater experience with social rejection. Members of stigmatized groups—including African Americans (Branscombe et al., 1999; Cross & Strauss, 1998)—also tend to score higher on measures of rejection sensitivity compared to the non-stigmatized.

Second, inter group settings set the stage for individuals with stigmatized identities to anticipate rejection, priming social pain. Research links the immediate experiences of social pain to the same neurologic processes that occur when people experience physical pain (Eisenberger et al., 2003). Unlike physical pain, which is difficult for people to re-experience upon recollection, people seem to re-experience social pain with comparable intensity (Chen, Williams, Fitness, & Newton, 2008). Inter group contexts might prompt individuals with stigmatized identities to anticipate greater social pain, priming prior exclusionary experiences and heightening the psychological experience of social pain. Both Black and White college students erroneously anticipate members of racial out-groups to be

disinterested in intergroup interaction, suggesting concerns over ostracism (Shelton & Richeson, 2005). Importantly, Blacks worry about being the targets of prejudice when interacting with Whites (Mendoza-Denton, Purdie, Downey, & Davis, 2002), whereas Whites worry about appearing prejudiced (Dunton & Fazio, 1997).

### Overview of the present research

Stigma effects are often difficult to detect when samples are small and constrained to college populations, as is typical of laboratory research. College students may experience stigma less frequently in their immediate environments owing to social norms that discourage prejudice and discrimination. Similarly, responses to Cyberball-induced ostracism by college students may not generalize to a broader (and older) non-university sample that may be less engaged in a virtual ball toss game. In this study, we capitalized on the availability of a representative sample of White and African American adults outside of the academic context to test our hypotheses. Participants played an online game of Cyberball in their own homes and believed they were playing with other individuals around the country. This study reflects an important opportunity to demonstrate the generalizability of previous findings from both the stigma and ostracism literatures on a sample of adults whose experiences range beyond those of the typical college convenience sample.

Across participants, we manipulated whether participants believed other players in the game were racial in- versus out-group members, and, whether participants were ostracized, included, or over-included in the game. Afterward, we assessed participants' reflexive and reflective reactions to prejudice, along with attributions for other players' responses during the game.

We predicted that reflexive reactions to ostracism would be aversive (i.e., main effect for ostracism). We further predicted that the immediate threat of ostracism would be stronger for African American as compared to White participants (i.e., an interaction between participant race and inclusion). As in previous research, we predicted that reflective reactions would point to recovery from ostracism, with significant improvement in need fulfillment for reflective compared to reflexive needs (i.e., a main effect of needs). However, we further predicted that reflective reactions would be moderated by coping mechanisms. Specifically, we predicted that attributing ostracism to racism would be more likely in cross-race interactions with implications for recovery. Given the mixed pattern of results in previous research, we tested competing hypotheses regarding whether attributions of racism would either aid (according to Crocker & Major, 1989) or delay recovery (consistent with Schmitt & Branscombe, 2002a, 2002b).

## Method

### Participants and recruiting

A representative sample of 614 White and African American adult men and women (see Table 1 for complete demographic information) were sampled from participants in the Time-Sharing Experiments for the Social Sciences (TESS) program. Participants in the TESS program receive Internet service in exchange for participating in brief (15 min or less) research studies. Participants in our study were identified as potential respondents based on previously collected demographic data; this process ensured representative sampling across ages and incomes within the population and allowed us to recruit men and women who had identified themselves as belonging to one of the two racial groups of interest. Individuals who qualified for our study were invited to participate

**Table 1**  
Sample demographics: participant race, gender, and age.

	Participant racial identity	
	White % of total sample (N)	African American % of total sample (N)
<i>Males</i>	26% (160)	24% (148)
Age (18–35 years)	7.81% (48)	10.26% (63)
Age (36–50 years)	8.41% (50)	9.12% (56)
Age (51–90 years)	10.26% (63)	4.72% (29)
<i>Females</i>	25% (154)	25% (152)
Age (18–35 years)	10.1% (62)	14.65% (90)
Age (36–50 years)	7.16% (44)	6.51% (40)
Age (51–90 years)	7.82% (48)	3.58% (22)

Note: Total N = 614.

in a study of mental visualization that would take approximately 15 min.

### Procedure

#### Cover story

After providing informed consent, participants were told that the goals of the research were to understand mental visualization and they would play an online game of toss with two other individuals. To enhance the credibility of providing other players' demographic information, and to increase the salience of group identities, participants first responded to measures of racial/ethnic identity, gender, and age, and were asked to provide their first names. Participants understood that this information would be shared with other players during the game; in reality there were no other players, so this information remained confidential.

#### Cyberball

The Cyberball game (based on Williams, Cheung, & Choi, 2000; Williams & Jarvis, 2006) used for this study was designed to be maximally involving. Full-color animated avatars wearing baseball uniforms represented the other players who were standing on what appeared to be a green field where they tossed the ball to one another's gloves. Participants were represented by a gloved hand at the bottom of the screen, consistent with previous studies using this paradigm. Participants could see information about the other players (first name, age) in a small box below each player's avatar. Participants believed they were playing with two other same-sexed individuals whose age was within 1–2 years of their own.

We manipulated the other players' race (White versus Black) via the stereotypicality of player names (e.g., Tyrone versus Bill), and the skin-tone of the avatars. Avatars presented with stereotypically White names had light-peach skin tones while those presented with stereotypically Black names had medium-brown skin tones. Half of the participants believed the other players shared their own White or African American racial identities; the remaining participants believed the other players did not share their racial identities.

Finally, we manipulated the level of social inclusion (ostracized or included)<sup>1</sup> via the number of times participants received the ball from

<sup>1</sup> We also employed an over-inclusion condition. Participants in the over-included condition received the ball over half of the time (7 or 8 tosses). Our rationale for including an over-inclusion condition was that if individuals received more than their fair share of ball tosses, they may feel as though they are being treated specially, perhaps as a token affirmative action by others. Past research has successfully manipulated over-inclusion (Williams et al., 2000), but using twice as many ball tosses in the game. Whereas ostracism and inclusion were successfully manipulated with our 15-throw game, participants did not detect over-inclusion. Thus, we collapsed across the inclusion and over-inclusion conditions and compared these participants to ostracized participants for remaining analyses.

other players. The nature of our sampling and the need to avoid fatiguing participants required a truncated game of Cyberball. Pilot testing suggested most players were willing to play the game for approximately 15 tosses, so we fixed the number of turns in the game at this level. In the *ostracized* condition, participants received the ball only twice at the beginning of the game. In the *included* condition, participants received the ball one-third of the time (i.e., five tosses).

#### Dependent measures

After the game, we presented participants with an initial set of items to assess our manipulations (“What percent of the time did you receive the ball during the game?”; “During the game, I felt ignored”; “During the game, I felt excluded”). Responses to these last two measures were averaged such that higher scores reflected a greater perceived ostracism. These measures were followed by reflexive need and affect measures, attribution measures, and reflective need measures.

Reflexive and reflective needs and affect were assessed with the same items, but we altered the framing to assess reactions during the game versus post-attribution. For the *reflexive need measures*, participants were instructed to indicate how they felt *during the game*, using a scale ranging from one (not at all) to five (very much). Items assessed four needs: *belonging* (“I felt rejected”, “I felt like an outsider”), *self-esteem* (“my self-esteem was high”), *control* (“I felt in control”) and *meaningful existence* (“I felt non-existent”, “I felt invisible”). Participants next responded to five affect items (good/bad; friendly/unfriendly; angry/not angry; sad/not sad; and happy/not happy). For the *reflective measures*, participants responded to the same set of items, but here there were instructed to respond based on how “you feel right now.” Consistent with previous research, we computed an index score for each measure (reflexive and reflective) by reverse-coding appropriate items and averaging across items on the scale, with higher scores reflecting greater need fulfillment.

Attributions for treatment during the game were assessed between the reflexive and reflective measures. These items included how much participants believed they had been treated as they were because of their *race*, whether they believed they had been *discriminated against*, and whether they believed the *other players were racist*. All responses were reported using a 5-point scale that ranged from one (not at all) to five (extremely). Responses were averaged to create an index of attributions to racial prejudice, with higher scores reflecting stronger attributions to racism.

After completing reflexive need measures, participants were provided a summary of the research goals that included contact information for the primary investigators. Participants were encouraged to contact TESS or the Principal Investigators if they had any questions or concerns about the study; none did.

## Results

#### Manipulation checks

Participants reported feeling less included (reversed) and more ignored when ostracized ( $M = 3.96$ ) than when included ( $M = 1.65$ ) in the game,  $F(1, 614) = 634.58$ ,  $p < .001$ ,  $\eta_p^2 = 0.512$ . In addition, there was a main effect of participant race,  $F(1, 614) = 12.82$ ,  $p < .001$ ,  $\eta_p^2 = 0.021$ . African Americans ( $M = 4.21$ ) reported feeling more ostracized than Whites ( $M = 2.30$ ). No other main effects or interactions were observed for these data.

#### Reflexive versus reflective needs

Need satisfaction data were submitted to a repeated-measures GLM analysis, with participant *Race* (White, African American),

*Players' Race* (White, Black) and social *Inclusion* (ostracized, included) as between-subjects factors, and *Needs*<sup>2</sup> (reflexive, reflective) as a repeated measure. Summaries of descriptive data and effects are presented in Tables 2 and 3, respectively. As these tables illustrate, several effects consistent with previous research underscore the generalizability of findings to the broader population. Specifically, participants' needs were threatened by ostracism relative to inclusion, and reflective need satisfaction showed marked recovery within minutes of the ostracism experience.

With regard to hypotheses novel to this research, the predicted interaction between inclusion and participant race was significant (see Fig. 1),  $F(1, 606) = 5.59$ ,  $p < .02$ ,  $\eta_p^2 = 0.01$ . Simple effects analyses within Participant Race suggest that while both White and African Americans' needs were threatened by ostracism relative to inclusion, the magnitude of this effect was greater for African Americans ( $\eta_p^2 = 0.32$ ) than for Whites ( $\eta_p^2 = .28$ ). These data suggest that White and African Americans in our sample were similarly threatened by ostracism, but that African Americans' needs were somewhat more polarized relative to Whites'.

The significant four-way interaction between Race, Player Race, Inclusion and Needs qualified these lower-order effects. Our primary interests were in understanding the effects of participant Race and Inclusion; examination of the simple effects<sup>3</sup> within inclusion condition yielded additional support for our hypotheses.

#### Ostracized participants

Within the ostracism condition, there was a significant main effect of Needs, such that reflexive needs ( $M = 2.32$ ) were significantly threatened relative to reflective needs ( $M = 3.37$ ),  $F(1, 198) = 226.25$ ,  $p < .001$ ,  $\eta_p^2 = 0.53$ . This effect was moderated by a three-way interaction between participant Race, Players' Race, and Needs,  $F(1, 198) = 7.34$ ,  $p < .01$ ,  $\eta_p^2 = 0.04$ .

To interpret this interaction, we examined the simple effects of participant Race within the ostracism condition; these analyses revealed distinctions between African American and White participants. For ostracized African Americans, the predicted main effect of time was significant,  $F(1, 93) = 83.80$ ,  $p < .001$ ,  $\eta_p^2 = 0.47$ . But this effect was moderated by an interaction with Player Race,  $F(1, 93) = 6.54$ ,  $p < .01$ ,  $\eta_p^2 = 0.07$ . As Fig. 2 illustrates, the main effect for needs was stronger when African Americans were ostracized by White Players,  $F(1, 93) = 66.48$ ,  $p < .001$ ,  $\eta_p^2 = 0.42$ , compared to when they were ostracized by Black Players ( $F(1, 93) = 22.47$ ,  $p < .001$ ,  $\eta_p^2 = 0.19$ ). Comparisons of need-satisfaction levels between Player's Race were only marginally significant, although the pattern of effects was as predicted. That is, African Americans' reflexive needs were more threatened when ostracized by White Players. Together, these patterns suggest that African Americans' recovery from the threat of ostracism was attenuated when Black compared to White Players ostracized them.

For ostracized Whites, there was only a simple effect of Needs such that reflexive needs were significantly threatened ( $M = 2.40$ ) compared to reflective needs ( $M = 3.45$ ),  $F(1, 105) = 158.11$ ,  $p < .001$ ,  $\eta_p^2 = 0.60$ . Thus, White participants' ability to recover from the threat of ostracism was the same regardless of whether they were ostracized by in- or out-group players.

#### Included participants

When participants were included in the game, only the simple effect of time was significant,  $F(1, 408) = 40.33$ ,  $p < .001$ ,  $\eta_p^2 = 0.09$ .

<sup>2</sup> Reliability indices for measures of both reflexive ( $\alpha = .85$ ) and reflective ( $\alpha = .85$ ) need fulfillment were relatively high. Our index of attributions to racial prejudice was similarly high in reliability ( $\alpha = .84$ ).

<sup>3</sup> Simple effects analyses were conducted using the overall mean square error from the omnibus analysis; multiple comparisons were adjusted using the Bonferroni procedure.

Although this effect parallels the data for ostracized participants, the magnitude of the effect is considerably weaker. Moreover, included participants' reflexive ( $M = 3.67$ ) and reflective need-satisfaction levels ( $M = 3.87$ ) were each slightly above the scale midpoint, suggesting that both groups felt their needs were relatively fulfilled rather than threatened.

#### Attributions to prejudice

Analyses of race prejudice attribution scores further support our hypotheses. Participants were significantly more willing to attribute ostracism ( $M = 2.31$ ,  $SD = 1.19$ ) than inclusion ( $M = 1.54$ ,  $SD = .84$ ) to prejudice,  $F(1, 614) = 94.26$ ,  $p < .001$ ,  $\eta_p^2 = 0.135$ . Consistent with previous research, African Americans ( $M = 1.94$ ,  $SD = 1.07$ ) were more willing to attribute their experiences to prejudice than were Whites ( $M = 1.64$ ,  $SD = .98$ ),  $F(1, 614) = 15.07$ ,  $p < .001$ ,  $\eta_p^2 = 0.024$ .

The main effect for participant Race was qualified by an interaction with Players' Race,  $F(1, 614) = 18.96$ ,  $p < .001$ ,  $\eta_p^2 = 0.030$ . Surprisingly, this interaction was driven by the responses of White, rather than Black participants. For Whites, the interaction between Inclusion condition and Players' Race was significant,  $F(1, 314) = 10.84$ ,  $p < .001$ ,  $\eta_p^2 = 0.034$ . Whites' attributions were sensitive to the other players' racial group memberships when ostracized but not when included. Whites were more likely to attribute ostracism to prejudice when excluded by Black ( $M = 2.57$ ,  $SD = 1.43$ ) rather than White players ( $M = 1.73$ ,  $SD = .87$ ),  $F(1, 107) = 13.64$ ,  $p < .001$ ,  $\eta_p^2 = 0.115$ .

African Americans' attributions to prejudice revealed a very different pattern; only the main effect for inclusion was reliably significant,  $F(1, 300) = 43.66$ ,  $p < .001$ ,  $\eta_p^2 = 0.13$ . African Americans were more likely to attribute ostracism ( $M = 2.49$ ) to prejudice as compared to inclusion ( $M = 1.69$ ), regardless of whether other players were in- or out-group members.

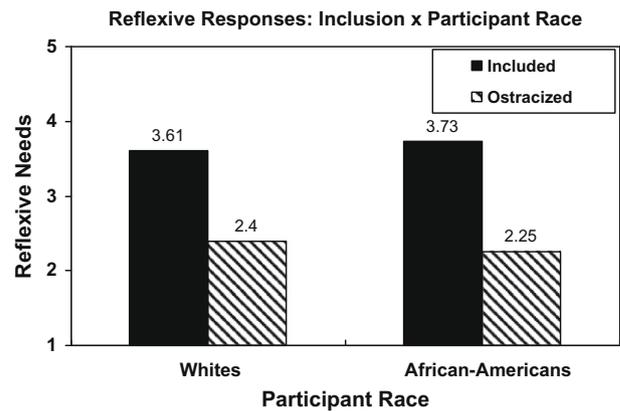
#### Mediation analyses

A key goal of this project was to examine whether attributions to prejudice would mediate recovery from ostracism. Our mediation analyses followed the traditional approach outlined by Baron and Kenny (1986). Inclusion condition scores were effect coded (1 = included, -1 = ostracized) and centered to account for the unequal sample sizes. As predicted, the relationship between inclusion and reflective needs was partially mediated by attributing one's experience to prejudice (see Fig. 3). Participants who experienced ostracism were more likely to attribute their experiences to prejudice, and the more they did so, the more their reflective needs were threatened. The indirect effect of Inclusion on reflective needs as mediated by attributions to prejudice was equal to .11; attribu-

**Table 3**  
General linear analysis (GLM) analysis for needs.

Source	df	F	$\eta_p^2$	p
<i>Between subjects</i>				
Race (R)	1	.16	.00	.69
Players' race (PR)	1	.03	.00	.87
Inclusion (I)	1	263.65	.30	<.001
R × PR	1	.07	.00	.80
R × I	1	5.59	.01	.02
PR × I	1	.74	.00	.39
R × PR × I	1	.02	.00	.90
Error	606	(.88)		
<i>Within subjects</i>				
Needs (N)	1	354.49	.37	<.001
N × R	1	.01	.00	.93
N × PR	1	4.76	.01	.03
N × I	1	163.65	.21	<.001
N × R × PR	1	6.24	.01	.01
N × R × I	1	.00	.00	.95
N × PR × I	1	.83	.00	.36
N × R × PR × I	1	10.24	.02	.001
Error needs	606	(.30)		

Note: values in parentheses represent mean square errors.

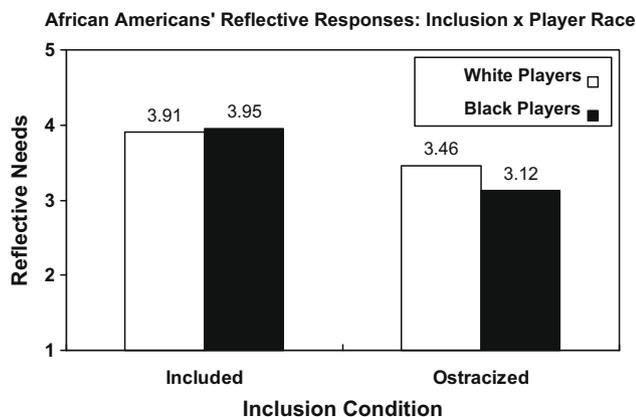


**Fig. 1.** Interaction between Inclusion and participant Race for reflexive responses. The magnitude of the Inclusion main effect is larger for African American participants.

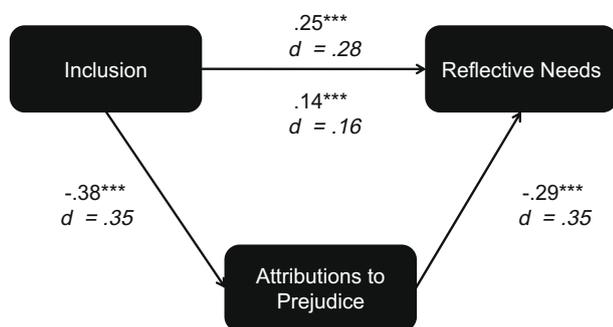
tions to prejudice accounted for 44.34% of the total effect, Sobel  $z = 6.51$ ,  $p < .001$ . Follow-up analyses revealed no moderation of effects by participant Race or Player Race. Consistent with Branscombe et al.'s previous findings, attributing ostracism to prejudice threatened, rather than bolstered, reflective needs, regardless of participant race.

**Table 2**  
Reflexive and reflective needs: means, standard deviations, and cell sizes by experimental condition.

	African American participants				White participants			
	White players N = 46		Black players N = 49		White players N = 55		Black players N = 52	
	Reflexive needs	Reflective needs	Reflexive needs	Reflective needs	Reflexive needs	Reflective needs	Reflexive needs	Reflective needs
<i>Ostracized</i>								
Mean	2.13	3.46	2.37	3.12	2.48	3.44	2.32	3.46
SD	.74	1.16	.90	1.17	.75	.77	.88	1.04
<i>Included</i>								
Mean	3.69	3.91	3.77	3.95	3.58	3.84	3.66	3.79
SD	.81	.78	.69	.67	.61	.55	.60	.56



**Fig. 2.** Ostracized African American's responses depend on both the other Player's Race and when Needs were assessed. Needs fulfillment improved upon reflection, but this effect was larger in magnitude when African Americans were ostracized by White players, relative to when they were ostracized by Black players.



**Fig. 3.** The relationship between Inclusion and Reflective Responses was partially mediated by Attributions to Prejudice. Participants who were ostracized were more likely to attribute their treatment to racial prejudice compared to participants who were included. Attributions to prejudice were negatively related to reflective need fulfillment.

## Discussion

This is the first study of ostracism to examine a broad sample of the US population, including Caucasian and African American adults ranging from 18 to 85 years old. Considerable research has demonstrated large and negative effects of ostracism, particularly employing the Cyberball paradigm, with college students (Gerber & Wheeler, 2009). It is nevertheless important to determine if these effects are valid across non-student samples and across age groups. Clearly, our study of over 600 representative adults contributes to the validity and utility of the Cyberball paradigm to investigate the impact of ostracism. Furthermore, our results support the general finding that even brief and seemingly trivial episodes of ostracism—involving strangers for whom no future interaction is anticipated—is sufficient to produce large negative reactions.

The results of this study go beyond mere replication to a broader sample. These data are the first to demonstrate that membership in a stigmatized social group moderates reflexive reactions to ostracism. These data raise the question of why African Americans experienced ostracism to be relatively more threatening than did Whites? The chronic experience of prejudice may explain this effect. Research on coping with discrimination suggests, for example, that chronic experiences with racial discrimination predicts daily discrimination and distress (Ong, Fuller-Rowell, & Borrow, 2009). Anticipating prejudice, particularly race-based prejudice, may magnify the experience of ostracism when it occurs. Future re-

search including measures of prior history with ostracism as well as baseline tendencies to anticipate prejudice is needed to test this possibility.

This study is also the first to demonstrate that attributing rejection to racial prejudice does not buffer the immediate harm of ostracism; that a group-based stigmatized identity may be detrimental when it comes to recovering from even a brief encounter of ostracism. Attributions to prejudice significantly mediated the relationship between inclusion and reflective needs for both Whites and African Americans. In contrast to much previously published research using college participants, participants in our representative sample did not benefit from making attributions to prejudice. Ruminating on ostracism may explain this effect (Swim, 2008). Perhaps attributing ostracism to prejudice and discrimination provided ruminative material that served to focus participants on their experiences, preventing distraction and slowing recovery.

One of the most interesting effects observed in our data is that of African American participants who attributed ostracism to racial prejudice regardless of the source of their rejection; White participants attributed ostracism to prejudice only when excluded by out-group players. These results are consistent with research suggesting African Americans (but not Whites) experience racial prejudice from fellow African Americans (i.e., *intra*-group prejudice) as well as from individuals of other racial groups (i.e., *inter*-group prejudice). Although little research attention is given to the study of *intra*-group bias in social psychology (for review, see Maddox, 2004), there is considerable evidence that African Americans in the US experience bias from racial in-group members. Research using implicit measures of racial attitudes, for instance, reveals evidence for negative attitudes by Blacks for Blacks (Nosek, Banaji, & Greenwald, 2002). Further, Maddox and Gray (2002) drew from historical evidence of skin-tone bias and demonstrated that both Black and White perceivers evaluated dark-skinned Black targets more negatively and stereotypically than they did light-skinned Blacks.

Given African Americans' history of within-group prejudice, it seems logical that our African American participants would be willing to attribute ostracism to prejudice regardless of the source. Of course, skin tone was not manipulated in our study, so this particular mechanism for in-group attributions to racism seems unlikely. However, the use of contemporary stereotypic Black names (e.g., Shaniqua) in our study may have signaled within-group racial differences that correlate with skin-tone bias. To the extent such names may signal social class and education – characteristics that have historically been associated with skin-tone variance – our Black participants may have inferred skin-tone differences which in turn afforded attributions to racism. Future research should consider whether perceivers make inferences about phenotypic features such as skin-tone based on stereotype consistent traits.

Because we sampled individuals across the life span and beyond the college setting, individuals in our sample also may have had more personal experience with prejudice, including experience with intragroup prejudice. If so, these experiences could further account for African Americans' willingness to attribute in-group members' ostracism to racial prejudice. Unfortunately, necessary constraints to the data collection process precluded collecting measures of prior experiences with prejudice that might elucidate such arguments. Regardless of the antecedent of this effect in our study, the finding has potentially important implications for understanding the costs of prejudice for individuals who belong to stigmatized groups. More specifically, these data would suggest that the stresses associated with experiencing prejudice may not be limited to intergroup prejudice, but may also occur when individuals experience prejudice at the hands of fellow in-group members. Models that focus solely on targets' attributions of intergroup prejudice may be missing a piece of the puzzle when it comes to predicting negative health outcomes and coping.

Ostracism research can provide insight into understanding the psychological effects of belonging to stigmatized groups just as stigma theory and research can enlighten our understanding of ostracism. Integrating research across these traditions opens the door for research to examine whether individual differences further moderate these effects for individuals with stigmatized identities. Given the link between experiencing prejudice, psychological stress, and poor physical health outcomes, such findings might suggest ways to identify those at greatest risk for such outcomes, as well as means of helping people cope with prejudice.

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