Abstract

A variety of health disparities exist between White and Black individuals in the United States. These disparities persist even when accounting for factors such as socioeconomic status and access to healthcare, which suggests that the unique social experiences of belonging to a racial minority group may contribute to poorer health outcomes. Prior research has indicated that cross-race social interactions, both positive (e.g. receiving positive feedback from White individuals) and negative (e.g. experiencing discrimination) can evoke physiological stress-responses, which can ultimately influence Black individuals' health outcomes. Inflammation is a specific physiological mechanism through which race-related social distress can manifest. Racism-related vigilance, which refers the mental actions involved in thinking about, preparing for, and anticipating potential experiences of discrimination (Hicken et al., 2013), represents one psychological construct that may be relevant to the ill-effects observed in both positive and negative cross-race interactions. The current study assesses the relationship between racism-related vigilance, perceived discrimination, and inflammation in Black individuals. It also investigates the extent of racism-related vigilance as a function of the type (e.g. positive or negative) of cross-race social feedback situations to which Black individuals are exposed. Vigilance was assessed using a self-report and a behavioral measure, which involved receiving social feedback from racial outgroup and ingroup evaluators. Inflammation was assayed via level of pro-inflammatory cytokine, interleukin-6 (IL-6) and perceived discrimination was measured via self-report. Heightened racism-related vigilance was associated perceived discrimination, but was not significantly related to levels of inflammation. Further, vigilance did not differ significantly across the different cross-race social feedback conditions. Though the findings of

this study do not support predicted hypotheses, implications and future directions for the study of cross-race social experiences and their effects on race-related health disparities are discussed.

It is well-established that a variety of health disparities exist between White and Black individuals in the United States. Black Americans are at greater risk for several different negative health outcomes, including increased blood pressure, cardiovascular disease, diabetes, increased infant mortality rates, and decreased longevity (James, 1994; Williams & Sternthal, 2010). These disparities persist even when accounting for factors beyond race, such as socioeconomic status and access to healthcare, which suggests that the unique social experiences of belonging to a racial minority group may contribute to poorer health outcomes. A vast body of research has shown that both explicit experiences of and perceived racial discrimination are a key contributor to these race-based disparities in health (Williams & Sternthal, 2010). In other words, the distress associated with being a victim of discrimination can produce physiological manifestations, which in turn can influence health. One physiological mechanism through which discrimination-related distress can manifest is inflammation, a key facet of the innate immune system that is implicated in a number of chronic disease states (Sergerstrom & Miller, 2004; Cohen et al.,2012). A multitude of studies have linked exposure to stressors to increased levels of inflammation (Sergerstrom & Miller, 2004; Gruenwald et al., 2006; Miller, Chen, & Cole, 2009). Moreover, sustained elevated levels of inflammation are associated with greater risk for chronic diseases such as hypertension, diabetes, and cardiovascular disease (Sergerstrom & Miller, 2004; Williams & Mohammed, 2009). Considering the inherently stressful nature of racial discrimination, it is no surprise that Black individuals maintain higher levels of inflammation and are at greater risk for the illnesses listed above compared to their White counterparts (James, 1994; Williams & Mohammed, 2009; Williams & Sternthal, 2010; Fuller-Rowell et al., 2015). Overall, these findings underscore the impact of discrimination on health via alterations to

inflammatory processes, and illustrate a clearly negative outcome of such problematic cross-race interactions.

Though several studies have established the long-term health effects of experiencing racial discrimination, a substantial amount of research on the short-term consequences of discrimination suggests that there is more to the story about the effects of discrimination on the health and well-being of racial minorities. Research of this nature has revealed that, though racial discrimination is clearly harmful for health and well-being in the long run, attributing negative social treatment or negative feedback to discrimination can actually be protective for the victims of these experiences in the moment (Crocker et al., 1989, 1991; Masten, Telzer, & Eisenberger, 2011). For example, attributing negative feedback to discrimination has been associated with increased and more stable levels of self-esteem immediately following such feedback (Crocker et al., 1989). While internal explanations (i.e. lack of ability) for negative feedback tend to lower self-esteem, external explanations (i.e., racial prejudice) shift the blame away from personal attributes, and thus protect self-esteem. Further evidence for the protective properties of attributing negative outcomes to discrimination comes from a functional MRI study investigating the neural activity involved in negative cross-race interactions. Masten et al., (2011) found that Black individuals who attributed an experience of social rejection by white individuals to discrimination displayed decreased activity in the dorsal anterior cingulate cortex (dACC), an area associated with social distress processing. Attribution to discrimination was also linked to increased activity in emotion regulation areas like the prefrontal cortex (PFC) and rostral ACC (rACC). Overall, in comparison to Black individuals who attributed their rejection to other reasons, individuals who made racial discrimination attributions demonstrated an altered pattern of neural activation that seemed to buffer the negative impact of experiencing this maltreatment.

This finding importantly highlights how individuals' attributions can affect them at the neural level in the context of cross-race interactions. Another study regarding "in the moment" responses to cross-race social rejection demonstrated that Black individuals display challenge-related (vs. threat-related) physiological activity in response to rejection by White individuals (Mendes et al., 2008). This sort of response indicates a more effective activation of physiological systems involved in reacting to stress (Mendes et al., 2008), which supports other results indicating the "protective" properties of attributing negative treatment to discrimination.

Taken together, the findings of prior literature compose a complex framework for understanding the impact of cross-race social interactions on Black individuals' health and well-being. On one hand, there are obvious negative health consequences resulting from experiences of discrimination. Yet, on another hand, perceiving maltreatment as a result of discrimination appears to have a buffering effect on the distress that may be experienced in the moment of such acts. This framework is further complicated as we shift focus to the effects of *positive* cross-race social interactions between Black and White individuals. Emerging research has suggested that seemingly positive interracial interactions, such as receiving positive feedback from Whites, may actually create stress-provoking situations for Black individuals. Along these lines, a small number of studies have investigated the effects of receiving positive feedback from racial outgroup evaluators. For example, Mendes et al. (2008) found that Black individuals receiving positive social feedback from Whites exhibited threat-related cardiovascular reactivity as well as reduced performance on a cognitive task compared to those who received positive feedback from other Black individuals. Hoyt et al. (2007) produced similar findings in a study involving virtual manipulations to assess Latinos/as responses to cross-race positive feedback from Whites. Latino/a participants reported reduced well-being following positive feedback from other

participants perceived to be White compared to when receiving negative feedback. These counterintuitive findings are thought to reflect the consequences of "attributional ambiguity," or minority individuals' uncertainty about whether to attribute positive feedback from Whites as being genuine or simply motivated by their desire to not appear prejudiced (Mendes et al., 2008 & Major et al., 1989). In other words, minority individuals may struggle with the uncertainty of whether they should take positive feedback from majority group members at "face value" and accept it as their true feelings, or instead view such feedback as something said by majority group members to simply avoid negative stereotypes.

Overall, the experiences these different types of cross-race interactions described above seem to produce a variety of outcomes for Black individuals' health and well-being. However, one potential common thread in such interactions may be the role of vigilance. Racism-related vigilance refers to the mental actions involved in thinking about, preparing for, and anticipating potential experiences of discrimination (Hicken et al., 2013). Interestingly, research has suggested that vigilance may be a relevant psychological factor in cross-race interactions regardless of whether they are positive or negative. Carter (2007) found that Black individuals reported higher levels of vigilance following experiences of racial discrimination. Additionally, after receiving positive social feedback from a White evaluator, Black individuals displayed more vigilant behaviors in subsequent interactions with White evaluators (Mendes et al., 2008). Moreover, Williams & Mohammed's (2009) review of studies involving racism-related vigilance indicate that it may be an important mediating factor in the relationship between social stressors and health. As suggested by Williams (2009 & 2007), the continued psychological and cognitive processes involved in heightened vigilance could also cause prolonged activation of biological stress systems (i.e. inflammatory responses). If this is the case, then vigilance may offer further

insight into the observed long-term health consequences of experiencing discrimination despite the existence of short-term "protective" properties of making discrimination attributions. The presence of heightened vigilance may also help to understand why even positive cross-race interactions may produce negative outcomes for Black individuals.

To date, few studies have focused on racism-related vigilance as a contributor to the relationship between discrimination and racial disparities in health. Even fewer have investigated how vigilance may be involved in non-discriminatory cross-race interactions (e.g., cross-race positive feedback). Further, investigations of racism-related vigilance have relied solely on short self-report surveys consisting of questions like: "*In dealing with day-to-day (cross-race) experiences that you just told me about, how often do you: 'think in advance about the kinds of problems you are likely to experience?'* Or *'try to prepare for possible insults before leaving home?'"* (Hicken et al., 2013; Clark et al., 2006), While self-report measures can be very informative, behavioral measures may be more effective, as they allow for racism-related vigilance to be evaluated in real-time, and avoid some self-presentation concerns that arise with explicit self-report measures. As such, the aim of the current study is to assess racism-related vigilance using both self-report *and* behavioral assessment as it relates to perceived discrimination and a physiological marker of health risk (e.g., basal levels of inflammation) in Black individuals. This study also examines the extent of racism-related vigilance depending on the type of cross-race social feedback (e.g., positive/negative) to which Black individuals are exposed. It is hypothesized that heightened vigilance will be associated with greater levels of perceived discrimination and inflammation. Prior studies have found a positive relationship between perceived discrimination and inflammation, so it is expected that these findings will also be replicated in this study. Additionally, it is anticipated that vigilance will mediate this

relationship between perceived discrimination and levels of inflammation, such that higher levels of vigilance will intensify the relationship between discrimination and inflammation. Finally, it is predicted that greater vigilance will persist in both positive and negative cross-race social feedback conditions as compared to same-race conditions.

Method

Participants

22 African American adults (14 females) ranging in age from 18-37 (M= 22.23, SD = 5.85) were recruited for this study using emails and flyers directed toward students of Virginia Tech University and members of the Roanoke, VA community. Participants were also referred by other participants (the referring participant received $5). No recruitment materials mentioned that the study was about race. Participants were excluded if they currently or previously suffered from chronic physical or mental illness or if they had a BMI of greater than 30. Prior to the start of the study, participants completed a consent form in accordance with the University's Institutional Review Board.

Procedure

Data for this study were collected as a part of a larger neuroimaging study aimed at investigating Black individuals' neural responses to receiving social feedback from racial outgroup versus racial ingroup evaluators. While the current study does not report neuroimaging results, participants' reaction times to stimuli employed in the scanner task are used in the analyses for this project. As such, the procedure for the imaging task is detailed below. Experimental sessions began with participants completing a battery of self-report measures. Assessments of perceived discrimination and racism-related vigilance were imbedded within this battery, along with several other measures, so as not to tip off participants that the study was

about race. Participants then provided oral fluid samples to be assayed for inflammation. Next, they completed the fMRI task, which was followed by a few additional self-report measures not relevant to the current study. Finally, all participants were debriefed and then dismissed.

Measures

fMRI task.

The fMRI task that was used allowed the investigation of responses to both positive and negative feedback from racial outgroup and ingroup evaluators (Moor et al., 2010). The task included these different feedback/racial group types in order to allow comparisons of different social feedback conditions by evaluator race (e.g., White v. Black), valence of feedback (e.g., positive v. negative), and stereotype relevance (e.g., based on stereotype about Black individuals or not). Participants were told they would be involved in a study of "first impressions," and were contacted two weeks prior to their scheduled MRI session to request a photograph of themselves, which would be used in the study. Upon receiving their photographs, they were told that other participants would be viewing their pictures and evaluating them on a number of different traits. While in the scanner, participants received the feedback that they believed was from other participants; however, the feedback was fixed in advance.

This study used a 2 x 2 x 2 within-subjects-design. Feedback was either based on stereotype about Black individuals or not, positive or negative, and provided by either a White or Black evaluator. To determine the feedback statements that were used in this task, a prior study (unpublished) was conducted via a survey on Amazon Mechanical-Turk. In this study, a separate sample of participants rated a variety of statements in order to confirm that they were indeed stereotype-relevant or irrelevant and either positive of negative. The feedback statements used for the fMRI task stimuli were selected based on these ratings. Possible types of feedback

included: stereotype-irrelevant outgroup positive feedback, stereotype-relevant outgroup positive feedback, stereotype- irrelevant outgroup negative feedback, stereotype- relevant outgroup negative feedback, stereotype-irrelevant ingroup positive feedback, stereotype-relevant ingroup positive feedback, stereotype-irrelevant ingroup negative feedback, and stereotype-relevant ingroup negative feedback. Examples of stimuli used include: "You seem very *unlikely* to have a clean record with the police" (negative, stereotype), "You seem very *likely* to have gotten good grades in school" (positive, stereotype), "You seem very *unlikely* to help take care of a sick family member" (negative, non-stereotype), and "You seem very *likely* to be a reliable friend" (positive, non-stereotype).

Each trial began with an image of the supposed evaluator, who was either Black or White, and an indication of the trait on which the person was being evaluated for that particular trial. The participant was then shown a crosshair while they anticipated the actual feedback. Next, the same image of the evaluator appeared along with the feedback. Participants were instructed to press a button to acknowledge their receipt of the feedback, after which, the next trial proceeded (see Figure 1 for a visual representation of the trials). Each participant completed 30 trials for each of the feedback conditions described in addition to several trials of a control task. The control task was a shape matching task where participants saw three shapes on the screen, and were asked to indicate (via button press) which of two shapes at the bottom of the screen matched the shape at the top of the screen.

Inflammation assay.

Interleukin-6 (IL-6) has been widely used in the psychoneuroimmunology literature as a marker of systemic inflammation (Slavich et al., 2010; Miller et al., 2009). Because social stressors have been associated with the localized expression of inflammatory markers in the

mouth (i.e., gingival crevicular fluid) in prior studies (Slavich et al.,2010), IL-6 activity was assessed in oral mucosal transudate (OMT). OMT is a filtrate of blood plasma that has been validated for measuring inflammatory activity. In the present study, OMT samples were obtained using an OraSure Collective Device (Epitope), which consists of an absorbent pad and a storage vial. For each collection, the pad was placed between the participant's lower cheek and gum for 2 min and then inserted into the vial for storage. Vials containing the OMT samples were immediately refrigerated and then transferred to a −80 °C freezer for storage. Assays were conducted at an immunology facility at UNC. IL-6 was measured using the IMx automated microparticle enzyme immunoassay system (Dickerson et al.,2004; Nishanian et al., 1998; Weik et al., 2008).

Measures of racism-related vigilance.

Suspicion of motives index (SOMI).

The SOMI, which examined participants' perceptions of White individuals' motives to avoid prejudice, was used as the self-report measure of racism-related vigilance. This self-report assessment required participants to rate their agreement with 10 different statements regarding their perceptions of Whites' motives on a scale of 1 (*strongly disagree*) to 9 (*strongly agree)*. Five of the scale's items assessed Perceived Internal Motivation (PIM), or perceptions that Whites are internally motivated to respond without prejudice. For example, one item states "When white people act in a non-prejudiced way toward members of racial/ethnic minority groups, it is because it is personally important to them not to be prejudiced." The other five items assess Perceived External Motivations (PEM) to avoid prejudice, or perceptions that Whites are externally motivated to not appear prejudiced. For example, one such item states "White people act in a non-prejudiced way toward members of racial/ethnic minority groups, because they are

trying to avoid disapproval from others." SOMI scores were calculated by subtracting the average of scores on the PIM items from the average of scores on the PEM items. Positive SOMI scores indicate the belief that Whites' are more motivated by external reasons rather than internal motivations to not appear prejudiced (Major, Sawyer, & Kunstman, 2013). While it is not a direct measure of vigilance, the SOMI captures suspicion that may be involved in the anticipatory elements that are characteristic of racism-related vigilance.

Social feedback reaction times (RTs).

Reaction times for all participants for each trial during the imaging task were also assessed as a behavioral measure of racism-related vigilance. RT was defined as the time lapse between participants initial exposure to the social feedback and when they pressed a button to acknowledge their receipt of the feedback. All RTs were matched to appropriate trial types such that analyses could distinguish differences in RTs depending on the type of feedback condition.

Measure of perceived discrimination.

Perceived ethnic discrimination questionnaire (PEDQ).

The Perceived Ethnic Discrimination Questionnaire is a 22-item self-report assessment that requires participants to indicate the frequency of discriminatory acts they have experienced within the past three months (i.e., "How often have you been subjected to ethnic comments aimed directly at you, spoken either in your presence or behind your back?") (Contrada et al., 2001). Frequency of discrimination is expressed using a scale ranging from 1 (*never)* to 7 (*very often).* The questionnaire is broken down into seven subscales: verbal rejection, avoidance, exclusion, denial of equal treatment, devaluing action, threat of violence, and aggression.

Data Analytic Plan

Average RTs were calculated for each participant for each condition of social feedback. An ANOVA was used to investigate the effect of the different feedback conditions on average RTs. Correlation analysis was used to assess the relationships between PEDQ scores, SOMI scores, Il-6 levels, and feedback RTs.

Results

Participant Characteristics

The average age of participants was 22.23 years, with ages ranging from 18-37. Participants were primarily female (63.6%). About half of the sample were college and/or graduate students (44.5%), while the remaining were employed either part-time or full-time (54.5%). The majority of the sample was also well-educated, with 50% having received at least a bachelor's or associate's degree and another 36% having some college experience. Fifty-nine percent of the participants reported an annual income of $20,000 or more, however, only 9% earned greater than $75,000. Demographic characteristics for the full sample are displayed in Table 1. On average, participants scored .113 $\pm$ 1.2 on the SOMI. PEDQ scores were on average 2.42 $\pm$ 1.28. Average reaction times by feedback condition are shown in Table 3. IL-6 levels were collected from only 15 participants due to some participant's sessions being run in Blacksburg, where no centrifuge or freezer were available for sample preservation. Additionally, only 19 participants completed the fMRI task, and of those participants, only 17 complied with instructions to complete the button presses that were necessary to calculate RTs for each condition. Because of this missing data for some participants, sample sizes vary for the statistical analyses. Table 2 displays the N for each statistical analysis performed.

Correlations between Racism-related vigilance, Perceived Discrimination, and Inflammation

Consistent with the first hypothesis, PEDQ scores were associated with the behavioral measure of racism-related vigilance. A significant negative relationship was found for PEDQ scores and RTs for the outgroup, stereotype-irrelevant, positive feedback condition (r= -.47, p<.05), and the outgroup, stereotype-relevant, positive feedback was approaching significance, r=-.41, p=.07. Moreover, when RTs were averaged across all outgroup conditions (regardless of valence or stereotype relevance), a moderate significant relationship was found between PEDQ and RTs, r=-.46, p<.05). This means that higher score of perceived discrimination were correlated with shorter RTs in response to racial outgroup feedback, which is indicative of heightened vigilance. PEDQ scores were, however, not significantly associated the self-report measure of vigilance (e.g., SOMI scores), r=.27, p>.27. Contrary to the other piece of the first hypothesis, no significant relationship was found between levels of IL-6 and either measures of racism-related vigilance (all p > .3). Moreover, this study failed to replicate prior findings of a significant relationship between PEDQ scores and IL-6 levels (r= .08, p>.05), suggesting no relationship between perceived discrimination and levels of inflammation in this small sample. Table 4 reports all correlations.

Effects of Feedback Condition on Measure of Racism-related vigilance (reaction times)

In regard to the second hypothesis, no significant main effect was found for evaluator race, valence, or stereotype relevance on RTs to the different types of feedback [F (1,16) = .729, p>.05; F (1,16) = 0.0, p>.05; F (1,16) = 2.5, p>.05; see Table 3 for means and SDs]. This indicates that participants did not differ significantly in RTs across feedback conditions. Further, there were no significant interactions for evaluator x stereotype, evaluator x valence, stereotype x

valence, or evaluator x stereotype x valence interaction effects [F (1,16) = .52, p>.05; F (1,16) = .279, p>.05; F (1,16) = .006, p>.05; F (1,16) = 1.62, p>.05; see Table 3 for means and SDs]. Despite non-significance, Figures 2 and 3 show a slight crossover effect of evaluator race and valence for stereotype irrelevant and stereotype relevant feedback respectively. RTs for negative, stereotype-irrelevant feedback are greater when received from outgroup evaluators than from ingroup evaluators, though RTs for positive, stereotype-irrelevant feedback are quite similar regardless of evaluator race. For stereotype-relevant feedback, the reverse is true. RTs for negative, stereotype-irrelevant feedback are greater when received from ingroup evaluator than from outgroup evaluator. Still, RTs are similar across the board for positive feedback received from both out and ingroup evaluators.

Discussion

The primary goals of this study were to assess the relationships between racism-related vigilance, perceived discrimination, and a physiological indicator of stress. Additionally, this study attempted to understand the role of racism-related vigilance as a function of the type of social feedback to which one is exposed. Results of the analyses offer only partial support for the first hypothesis. Perceived discrimination was not associated with a self-report measure of racism-related vigilance (i.e. the SOMI), nor was is associated with levels of inflammation. As a result, the prediction that racism-related vigilance would mediate the relationship between perceived discrimination and inflammation was also not supported. However, perceived discrimination did have significant associations with the behavioral measure of racism-related vigilance. As expected, there was a negative correlation between perceived discrimination and reaction times to outgroup evaluator feedback, suggesting that individuals with higher levels of perceived discrimination are more vigilant in cross-race social feedback situations. This is

evidenced by their shorter reaction times to the feedback. Additionally, despite non-significance, the relationship between inflammation and the behavioral measure of vigilance (i.e., social feedback RTs) was moderate and in the expected direction, such that shorter reaction times to racial outgroup feedback conditions were associated with higher levels of inflammation. This suggests that heightened vigilance may be related to greater inflammation. Finally, the second hypothesis, which predicted that reaction times would be significantly shorter in response to outgroup evaluator feedback compared to ingroup feedback, was not supported.

Unfortunately, this study was severely limited by the small and varying sample sizes of the analyses, which may explain the multiple non-significant findings. As stated previously, IL-6 samples were collected from only 15 of the total 22 participants. As a result, all correlations with IL-6 were underpowered. It is possible that significant results would have been found with a larger sample, as has been found in prior research on the association between perceived discrimination and inflammation (James, 1994; Williams & Mohammed, 2009; Williams & Sternthal, 2010). Further support for this postulation comes from the correlation between IL-6 and average RTs for outgroup evaluator conditions. While it was not significant, the relationship was still in the direction that suggests heightened vigilance is associated with increased inflammation. Additionally, the full sample was not available for the correlational and ANOVA analyses involving social feedback reaction times. Because some participants were not comfortable with being placed in the MRI scanner, no reaction time data was available for these participants. Further, some participants did not comply with the task directions, resulting in no reaction time data for several of the feedback directions. Moreover, this study lacked any form of manipulation check to ensure that the measures of racism-related vigilance were actually effective is assessing this construct. Prior research or racism-related vigilance have relied solely

on brief, self-report indices (Hicken et al., 2013; Clark et al., 2006), and though this study did include a behavioral assay of vigilance (i.e. reaction times), it is possible that this still was not the most accurate measure of the construct.

Regardless of the insignificant results, the findings this study still offers a noteworthy insight into the relationship between perceived discrimination and a measure of racism-related vigilance. Correlational results provide support for the associations between racial discrimination and racism-related vigilance, which has not been directly observed via behavioral assessment in previous studies of such vigilance (Hicken et al., 2013; Clark et al., 2006). Because discrimination and vigilance appear to be related, it is possible that they may share the same physiological stress-response pathways and as a result, both be contributors to the widespread health disparities observed in Black Americans. Though the current study did not find any relationship between racism-related vigilance and biomarkers of stress, future studies may seek a more comprehensive analysis of the association between racial discrimination, racism-related vigilance, and its subsequent impact on physiological mechanisms involved in stress and health.

On another note, the lack of significant findings from these self-report and behavioral measures of racism-related vigilance may suggest that the effect of such vigilance cannot be captured via these specific assessments. This observation lends support for the use of more advanced methodologies for assessing this construct within the context of cross-race social feedback. Specifically, an investigation of the neural responses to social feedback from outgroup evaluators may be more effective in distinguishing the role of racism-related vigilance in such situations. For example, because prior research has indicated positive feedback from outgroup evaluators elicits threat-related physiological activity (Mendes et al., 2008), it is possible that it may also elicit greater activity in threat-related neural regions such as the amygdala and dorsal

anterior cingulate cortex (dACC). Given that these neural regions have been implicated in both vigilant behavior and the onset of physiological stress responses influencing health (McEwen et al., 2010 & van Marle et al., 2009), understanding how the brain responds to this type of feedback may expand current knowledge of neurobiological mechanisms involved racism-related vigilance and its connection race-related health disparities.

In conclusion, the current study sought to examine the construct of racism-related vigilance in relation to perceived discrimination, a physiological marker of stress, and various forms of cross-race social feedback situations. While the only significant finding demonstrated a relationship between one behavioral measure of racism-related vigilance and perceived discrimination, this study offers a variety of directions worthy of future research. First, examining this same construct in a much larger sample may provide the expected results this study initially attempted to establish. Further, establishing a validated measure of racism-related vigilance may be a necessary step in order to continue research of this nature. In addition to validated measures, the use of neuroimaging may also be helpful in connecting racism-related vigilance to the observed racial disparities in health and well-being of Black individuals. The pursuit of such research endeavors would be a significant contribution to the existing literature regarding effects of cross-race social interactions on critical outcomes for Black individuals.

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Appendix

Table 1. Demographic features of participants

Demographics	Sample (N=22)
Age (Mean ± S.D.)	22.23 ± 5.85
Range in years	18-37
Gender	
Male	8 (36.4%)
Female	14 (63.6%)
Education level	
Some high school	1 (4.5%)
High school diploma or equivalent	2 (9.1%)
Some college	8 (36.4%)
Bachelor's or associate degree	4 (18.2%)
Master's degree	5 (22.7%)
Doctoral/professional degree	2 (9.1%)
Employment	
Employed	12 (54.5%)
Unemployed	0
Student	10 (45.5%)
Income	
Below $20,000	9 (40.9%)
$20,000-$35,000	1 (4.5%)
$35,000-$50,000	4 (18.2%)
$50,000-$75,000	6 (27.3%)
$75,000-$100,000	1 (4.5%)
Above $100,000	1 (4.5%)

Table 2. Sample N for each statistical analysis

Variables	Correlation w/PEDQ	Correlation w/SOMI	Correlation w/IL-6	ANOVA
PEDQ	--	--	--	--
SOMI	19	--	--	--
IL-6	15	12	--	--
INGIRRNEG	18	16	12	17
INGIRRPOS	19	17	13	17
NGRELNEG	17	15	11	17
INGRELPOS	19	17	12	17
OUTIRRNEG	17	11	11	17
OUTIRRPOS	19	17	13	17
OUTRELNEG	17	15	11	17
OUTRELPOS	19	16	13	17
ATTENTASK	19	16	13	17
NEGATIVE	16	14	11	17
POSITIVE	17	15	11	17
INGROUP	19	17	12	17
OUTGROUP	19	17	12	17

Note: PEDQ= Perceived ethnic discrimination questionnaire; SOMI= Suspicion of Motives Index; INGIRRNEG= ingroup, stereotype irrelevant, negative; INGIRRPOS= ingroup, stereotype irrelevant, positive; INGRELNEG= ingroup, stereotype relevant, negative; INGRELPOS= ingroup, stereotype relevant, positive; OUTIRRNEG= outgroup, stereotype-irrelevant, negative OUTIRRPOS= outgroup, stereotype-irrelevant, positive; OUTRELNEG= outgroup, stereotype-relevant, negative; OUTRELPOS= outgroup, stereotype-relevant, positive ATTENTASK= control task; NEGATIVE= all negative conditions; POSITIVE= all positive conditions; INGROUP= all ingroup conditions; OUTGROUP= all outgroup conditions

Table 3. Means and standard deviations for PEDQ, SOMI, and RTs by feedback condition

Variable	Mean	SD
PEDQ	2.353983074	1.084221062
SOMI	0.113157895	1.283208014
IL-6	1.544327924	0.651645986
INGIRRNEG	1.358520983	0.437413091
INGIRRPOS	1.37255609	0.413516924
INGRELNEG	1.476121244	0.439319431
INGRELPOS	1.361665604	0.415253961
OUTIRRNEG	1.513036722	0.481840143
OUTIRRPOS	1.36669639	0.450917679
OUTRELNEG	1.442916172	0.423339461
OUTRELPOS	1.393198553	0.439640902
ATTENTASK	1.450130441	0.264211526
NEGATIVE	1.05573098	0.341156208
POSITIVE	1.286302503	0.335849231
INGROUP	1.379147367	0.364228332
OUTGROUP	1.425730444	0.431514987

Table 4. Correlations between PEDQ, SOME, IL-6, and RTs

Correlations with:	PEDQ	SOMI	IL-6
PEDQ	1.00	0.27	0.08
SOMI	0.27	1.00	-0.06
IL-6	0.08	-0.06	1.00
INGIRRNEG	-0.09	0.01	0.37
INGIRRPOS	-0.43	0.18	-0.22
NGRELNEG	-0.25	0.14	0.10
INGRELPOS	-0.44	0.14	-0.33
OUTIRRNEG	-0.25	0.17	0.02
OUTIRRPOS	-0.47*	0.15	-0.42
OUTRELNEG	-0.47	0.07	0.15
OUTRELPOS	-0.41	0.05	-0.42
ATTENTASK	-0.11	0.12	0.13
NEGATIVE	0.05	0.15	0.59
POSITIVE	-0.35	0.11	-0.32
INGROUP	-0.36	0.11	-0.06
OUTGROUP	-0.46*	0.07	-0.35

*$p<.05$

Figure 1. Visual Representation of fMRI scanner task

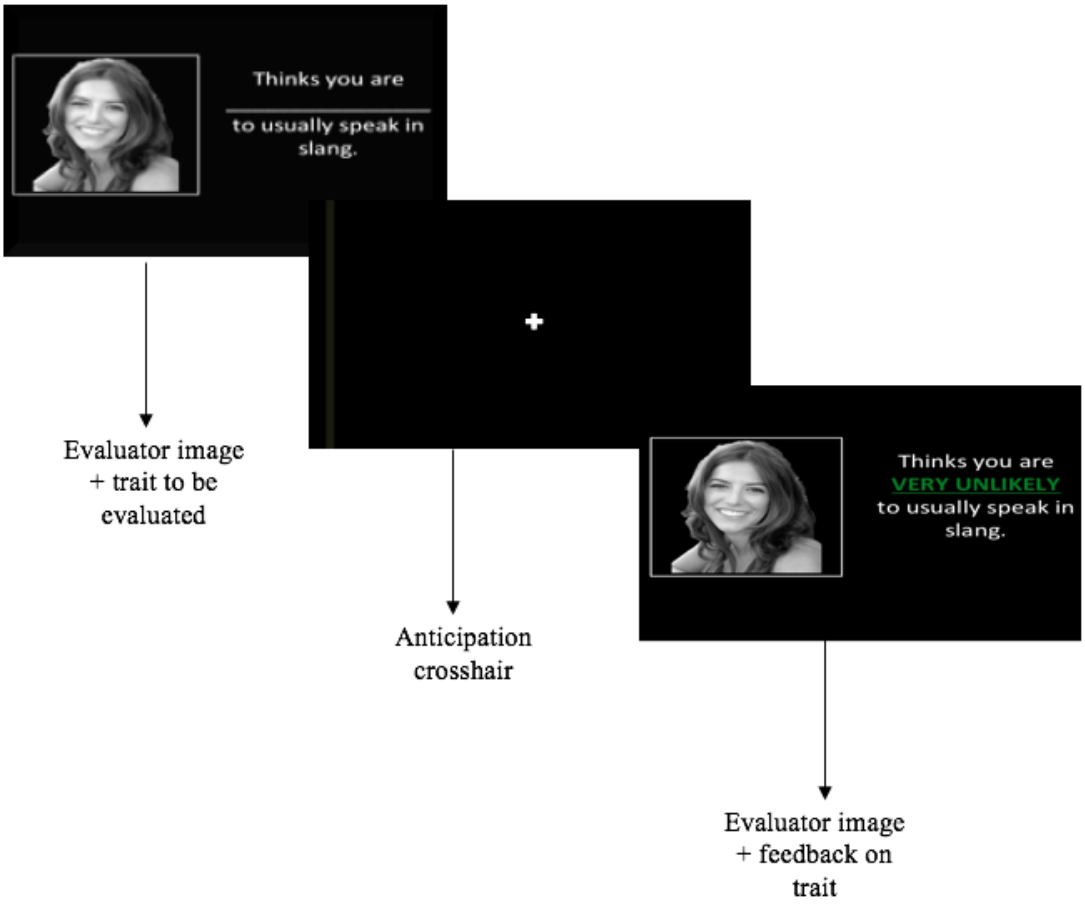
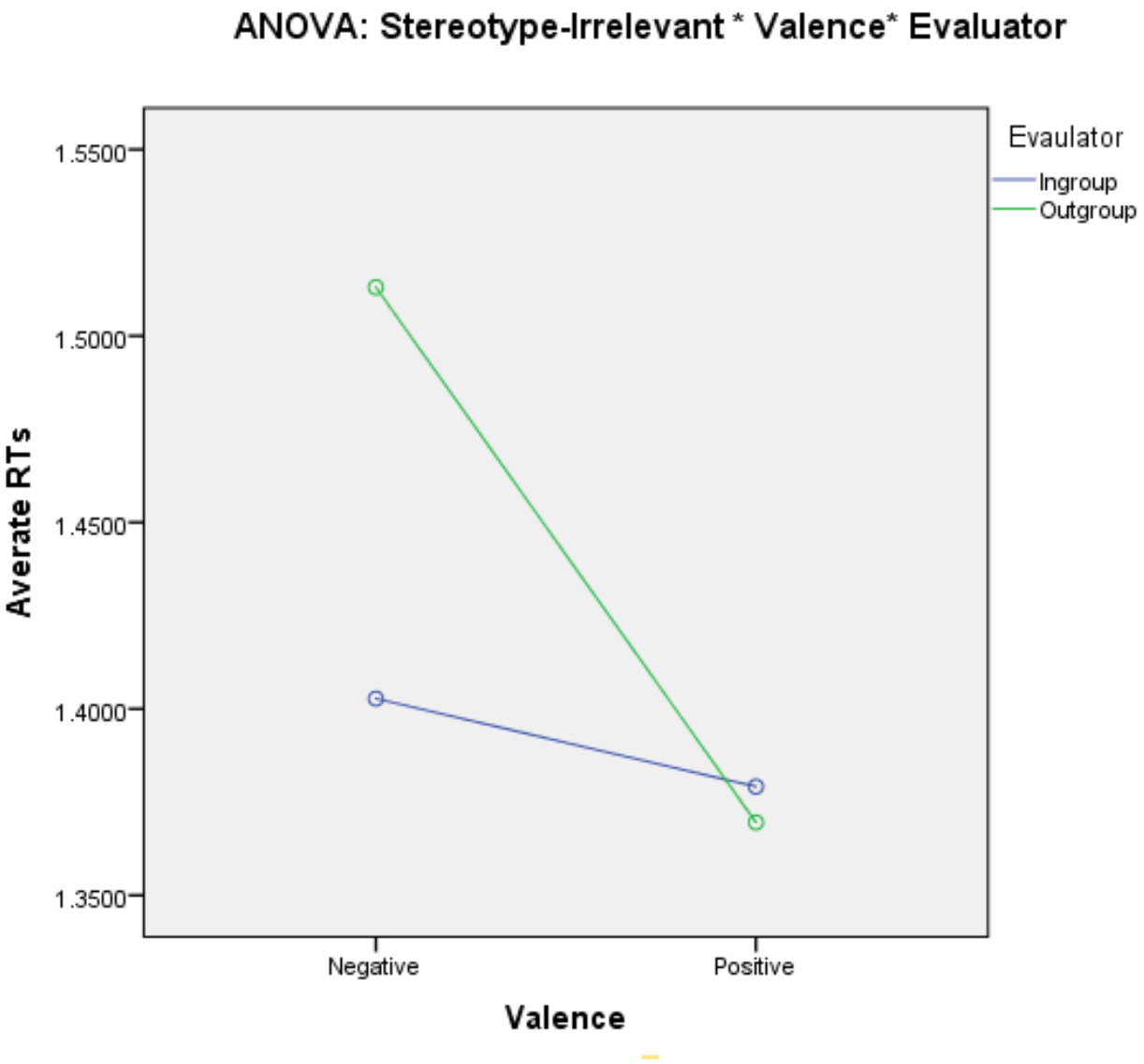
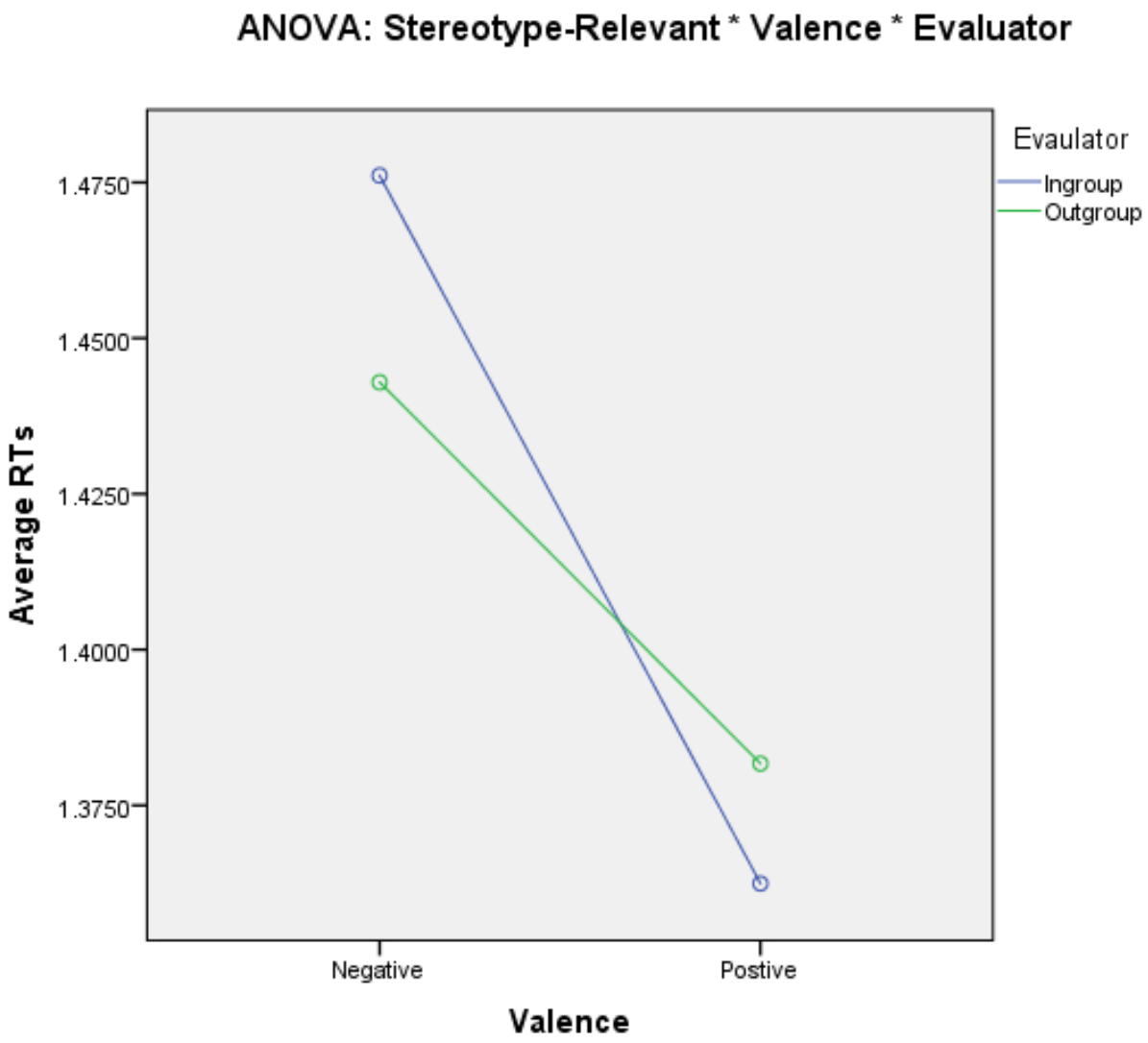


Figure 2. ANOVA of stereotype-irrelevant * valence * evaluator interactions



F (1,16) = .006, p>.05

Figure 3. ANOVA of stereotype-relevant * valence * evaluator interactions



F (1,16) = 1.62, p>.05