

The emotional impact of baseless discrediting of knowledge: An empirical investigation of epistemic injustice

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ABSTRACT

According to theoretical work on epistemic injustice, baseless discrediting of the knowledge of people with marginalized social identities is a central driver of prejudice and discrimination. Discrediting of knowledge may sometimes be subtle, but it is pernicious, inducing chronic stress and coping strategies such as emotional avoidance. In this research, we sought to deepen the understanding of epistemic injustice's impact by examining emotional responses to being discredited and assessing if marginalized social group membership predicts these responses. We conducted a novel series of three experiments (Total $N = 1690$) in which participants (1) shared their factual knowledge about how a game worked or their personal feelings about the game; (2) received discrediting feedback (invalidating remarks), validating feedback (affirming remarks), or insulting feedback (general negative social evaluation); and then (3) reported their affect. In all three studies, on average, affective responses to discrediting feedback were less negative than to insulting feedback, and more negative than to validating feedback. Participants who shared their knowledge reported more negative affect after discrediting feedback than participants who shared their feelings. There were consistent individual differences, including a twice-replicated finding of reduced negative affect after receiving discrediting and insulting feedback for Black men compared to White men and women and Black women. Black men's race-based traumatic symptom scores predicted their affective responses to discrediting and insulting feedback, suggesting that experience with discrimination contributed to the emotional processing of a key aspect of epistemic injustice: remarks conveying baseless discrediting of knowledge.

1. Emotional effects of baseless discrediting: the experience of epistemic injustice

What are the psychological consequences of being taken at one's word? Prior research suggests that they are enormous; the belief that one is trusted as a credible source of information is foundational to self-worth (e.g., Chang-Schneider & Swann Jr., 2010; Pelham & Swann, 1989). Unfortunately, credibility assessments are not always fair. Theoretical work on *epistemic injustice* (Fricker, 2007) proposes that people's knowledge may be unfairly discounted for reasons unrelated to their content, and instead related to the knowledge-holder's identity; as

a result, people with marginalized social identities are subject to pernicious levels of baseless discrediting, a central driver of prejudice and discrimination (Alcoff, 2010; Ayala, 2018; Dotson, 2012; Fricker, 2017; Medina, 2012). In this research, we sought to deepen the understanding of the impact of epistemic injustice by empirically examining emotional responses to being discredited and assessing if marginalized social group membership is associated with responses.

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2. Epistemic injustice as microaggressions discrediting the knowledge of marginalized individuals

According to a standard definition, microaggressions are “brief, everyday exchanges that send denigrating messages to certain individuals because of their group membership” (Sue & Spanierman, 2020, p. 36). They commonly target historically marginalized groups, such as people of color, women, or LGBTQ persons, and often have relevance to credibility, including negative attributions like untrustworthiness and incompetence (e.g., Dupree, Torrez, Obioha, & Fiske, 2021; Eagly, Makhijani, & Klonsky, 1992; Fiske, Bergsieker, Russell, & Williams, 2009; Fricker, 2017; Leslie, Cimpian, Meyer, & Freeland, 2015; Ong, Burrow, Fuller-Rowell, Ja, & Sue, 2013; Sagar & Schofield, 1980; Steele, 1997; Sue et al., 2007; Rini, 2020; Williams, 2020). Many forms of epistemic injustice can be understood as microaggressions targeting a person’s epistemic agency – her ability to convey and disseminate knowledge (Fricker, 2007). Microaggressions constituting epistemic injustice may manifest as a persistent pattern of identity-based discrediting—for instance, systematically perceiving more errors in a person’s statements, or repeatedly subjecting them to critical remarks or questioning based on some evidentially or epistemically irrelevant feature of their identity like race or gender (Alcoff, 2010; Ayala, 2018; Dotson, 2012; Fricker, 2017; Medina, 2012). Crucially, such microaggressions need not be overtly hostile (e.g., “She *actually* gave a very articulate speech!”; Purdie-Vaughns, Steele, Davies, Dittmann, & Crosby, 2008).

3. Consequences of epistemic injustice

Despite their often subtle nature, microaggressions and other covert acts of discrimination that can be characterized as epistemic injustice potentiate chronic stress, as well as mental and physical illness (e.g., Brownlow et al., 2019; Carter, 2007; Carter et al., 2013; Lewis, Cogburn, & Williams, 2015; Mays, Cochran, & Barnes, 2007). For instance, discrimination based on race and sexual orientation is associated with high levels of anxiety and depression (Berger & Sarnyai, 2015; Chan & Mendoza-Denton, 2008; Gee, Spencer, Chen, Yip, & Takeuchi, 2007; Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009; Henson, Derlega, Pearson, Ferrer, & Holmes, 2013; Meyer, 2003; Outlaw, 1993; Wong, Derthick, David, Saw, & Okazaki, 2014). Likewise, daily frequency of exposure to microaggressions covaries with adverse health outcomes (e.g., Ong et al., 2013; Sue et al., 2007); and, resultant to stress induced by discriminatory environments, Black Americans are at a higher risk of suffering cardiovascular problems (Brondolo, Brady ver Halen, Pencille, Beatty, & Contrada, 2009; Guyll, Matthews, & Bromberger, 2001; Krieger, 1990), and chronic inflammatory illnesses (Cohen, Vase, & Hooten, 2021; Simons et al., 2021).

Racism, sexism, and other biases intersect (e.g., Crenshaw, 1989; Hill Collins, 2019), potentially compounding effects on individuals. On the one hand, deleterious consequences of racial discrimination, including hypertension and depression, have been found to be similar for men and women (Brownlow et al., 2019; Clark & Adams, 2004; Clark, Adams, & Clark, 2001; James, Harnett, & Kalsbeek, 1983; Lewis et al., 2015; Mays et al., 2007; Woods-Giscombé, 2010), and, in some instances, Black men and women endorse similar coping strategies, such as attempting to reduce environmental stressors through strength and tenacity (“John Henryism,” James et al., 1983; the “Superwoman Schema,” Woods-Giscombé, 2010), as well as adaptive appraisals, whether positive or neutral, of aversive situations (Kalisch, Müller, & Tüscher, 2015). However, other research indicates that some coping strategies, like emotional expression and social connection, may be utilized more by women than men (e.g., Eaton & Bradley, 2008; Graves, Hall, Dias-Karch, Haischer, & Apter, 2021). In this research, we examine emotional responses to being discredited through the lenses of both race and gender to further deepen the understanding of the impact of epistemic injustice (see H3).

4. Responses to discrediting of knowledge

Prior research in psychology indicates that the emotional consequences of being questioned in one’s knowledge are, in general, aversive. Even if a person concedes to being incorrect, being wrong is a dissonant state often involving disappointment and uncertainty (Festinger, 1957). In some cases, attempts to undermine a person’s beliefs can induce anger and psychological reactance, causing the person to doggedly resist the influence (Brehm, 1966; Rosenberg & Siegel, 2018). Reinforcing people’s discomfort with being told they are wrong may be the “overconfidence effect,” where people are overconfident in their knowledge, especially when they lack competence in the knowledge area in question (e.g., Kruger & Dunning, 1999). Moreover, being generally high in confidence (but not necessarily any more competent) contributes to being consistently *more* overconfident about one’s knowledge (Klayman, Soll, Gonzalez-Vallejo, & Barlas, 1999). Thus, negative emotion evoked by having one’s knowledge discredited may be surmised to be subject to individual differences based on confidence, but it is unclear how emotional responses relate to individual differences in race and gender, and, moreover, experiences with identity-based discrimination, as the current research examines.

5. Discrediting of factual knowledge versus feelings

In developing this research, our interest was in epistemic injustice directed at a person’s capacity as a *knower* (as in Fricker, 2007). In as much as *factual* knowledge is closely associated with competence, and self-perceived competence is a core component of self-esteem (Liang et al., 2021; Tafarodi & Swann Jr, 1995), we can expect that discrediting of a person’s knowledge of the facts may be extremely threatening to self-esteem and emotionally aversive. By contrast, there is a long “rationalist” philosophical tradition wary of the epistemic utility of emotions (e.g., May, 2018). Indeed, because feelings, being personal and subjective by nature, are subject to different source verification conditions than factual information, people may consider attempts to discredit their feelings as fundamentally less legitimate, and therefore less threatening, than attempts to discredit their factual knowledge. The truism “people are entitled to their feelings, but not their own facts” reflects this folk understanding.

Nevertheless, people attest to knowledge about how they *feel*, in addition to their factual knowledge. Indeed, feelings can be an important source of information about the world (Schwarz, 2012), and are closely associated with self-perceptions and identity (Markus & Wurf, 1987; Sedikides & Gregg, 2007; Swann Jr, Chang-Schneider, & Larsen McClarty, 2007). Discrediting feelings, like discrediting knowledge, could also pose a substantial threat to self-esteem.

In this research, we study epistemic injustice in connection with both factual knowledge and personal feelings. By testing whether people show different responses to being discredited in their feelings versus their knowledge of the facts we aimed to shed new light on whether this distinction matters to epistemic injustice and its relationship to discrimination (see H2).

6. Experimental approach to understanding emotional responses to epistemic injustice

In this research, we sought to deepen the understanding of epistemic injustice’s impact by examining emotional responses to being discredited and assessing if marginalized social group membership predicts these responses. We used an experimental design informed by social psychology and behavioral economics in which participants took part in an online allocation game with a fictitious, anonymous partner. Participants played the role of the receiver of allocation decisions that a partner made for the two of them. The task for the participant was to share their knowledge (i.e., what they thought factually occurred in the game) or their feelings (i.e., how the game made them feel). Knowledge versus

feelings was varied between-subjects.

Next, all participants received *discrediting*, *validating*, or mildly *insulting* feedback on their knowledge or feelings from the purported partner. Discrediting feedback was chosen to operationalize the foundation of epistemic injustice: baseless invalidation of people's knowledge. Discrediting language may not be hostile, but it conveys that the target does not know what is right and that their current understanding is wrong (e.g., *That isn't how the game worked. Next time you should pay closer attention to the instructions and events*). Validating feedback represents the opposite; that is, granting credibility (e.g., *I get you. In my opinion, your choice shows you understand how the task works just fine.*). Insulting feedback conveyed more general negative social evaluation (e.g., *Okay hilarious. Why did they pair me with someone incompetent?*). Together, these three feedback conditions allowed us to validate and explore our primary outcome variable of interest: responses to being *discredited*, in contrast to being granted credibility (i.e., *validating feedback*) and being generally negatively evaluated (i.e., *insulting feedback*).

After receiving the feedback, participants rated their affect, our primary dependent variable in the experiments. Participants provided their *affective responses* to the feedback after the prompt: "How did the feedback you just received make you feel?" using a 7-point Likert scale anchored at "extremely negative" to "extremely positive". As a secondary measure of the potential behavioral influence of the different kinds of feedback on participants, we also asked participants how much they would consider changing their answer based on the feedback with a 7-point scale anchored at "not at all" and "very much." Subsequently, participants completed the Race-Based Traumatic Symptoms Scale (RBTS: Carter et al., 2013), the Life Events Questionnaire (LEQ: Brughla & Cragg, 1990), a PTSD (CAPS) inventory (Blake et al., 1995), the Justice Sensitivity Index - Victim Sensitivity subscale (JSI-V: Schmitt, Baumert, Gollwitzer, & Maes, 2010), and a short demographics questionnaire. These scales and inventories (described in "Study 1 Measures") measured participants' race-based trauma symptoms, experience and coping with traumatic life events, and sensitivity to being a victim of injustice, to examine the possibility that differences in responses to discrediting by marginalized social groups, if observed, are connected to experience of race-based discrimination (i.e., RBTS scores), rather than unspecified traumatic experiences alone or sensitivity to injustice (LEQ, CAPS, JSI-V; see H4).

7. Hypotheses

H1. Affect after feedback. We hypothesize that, on average, (a) affective responses to validating feedback will be significantly more positive than being discrediting and insulting feedback, whereas (b) affective responses to discrediting feedback may not significantly differ from insulting feedback.

H2. Knowledge vs. feelings. We hypothesize that negative affect and interest in changing one's answers would be increased when discredited in one's knowledge, compared to one's feelings. We expect that this may result from participants inferring the subjective nature of feelings relative to factual knowledge, and by extension, inferring that attempts to discredit their feelings are fundamentally less legitimate, and therefore less threatening and affectively negative, than attempts to discredit their knowledge.

H3. Gender and race. We hypothesize that participants from historically marginalized social groups (in our studies: women; Black participants) will respond to discrediting feedback with increased or decreased negative affect, rather than equivalent negative affect, relative to participants not from those groups. As described in the section of the Introduction "Consequences of epistemic injustice", members of historically marginalized social groups are exposed to chronic stressors and develop coping mechanisms in which affect may be managed through emotional expression and/or downregulation, suggesting that increased

or decreased negative affect are both plausible outcomes.

H4. Race-based discrimination. We expected affective responses to discrediting feedback to be associated with race-based discrimination (i.e., RBTS scores, Carter et al., 2013). The direction of this association will depend on how participants from marginalized social groups respond to discrediting feedback (i.e., H3). If we observe a pattern of increased negative affect relative to participants not from marginalized social groups, we would expect increased RBTS scores to negatively predict affect in response to discrediting feedback. If we observe a pattern of decreased negative affect relative to participants not from marginalized social groups, we would expect increased RBTS scores to positively predict affect in response to discrediting feedback. Regardless of the direction, finding an association would align with the possibility that individuals who experience more race-based discrimination endure more baseless discrediting of their knowledge, and that people who experience more race-based discrimination employ emotional coping methods (e.g., up/downregulating emotion) in response to discrediting remarks. To understand the connection between responses to discrediting and race-based trauma, rather than general trauma symptoms or sensitivity to injustice (LEQ, Brughla & Cragg, 1990; CAPS, Blake et al., 1995; JSI-V, Schmitt et al., 2010), we ran exploratory correlational analyses among these inventories.

8. Recruitment strategy

In this research, our recruitment strategy was tailored to our central aim of studying whether membership in marginalized social groups predicts emotional responses to discrediting. We focused on prejudice and discrimination in the United States, where systemic racism experienced by Black Americans has been entrenched in the nation's social institutions throughout U.S. history (Banaji, Fiske, & Massey, 2021). This historical context is increasingly understood to trigger chronic physiological stress responses resulting in pervasive health disparities in this population, including greater risk of disease and early death relative to White Americans (e.g., Mays et al., 2007). We focused here on discrimination against Black Americans and prioritized achieving nearly equivalent groups of self-identified Black/African American participants and White/European American participants.

We emphasize that our focus does not diminish the fact that other minority groups in the U.S., including Hispanic, Asian-American, and Native American individuals, experience prejudice and discrimination with harmful consequences, and that psychological science investigating epistemic injustice affecting these groups is also critically lacking. Although we did not have sufficient samples of Asian or Asian-American, Multiracial, or Native American or Pacific Islander participants for analyses, future studies' recruitment efforts would ideally be broadened to these groups, and also consider the impact of intersecting identities and status differentials (such as sexual minority and socioeconomic status).

We aimed to maximize power by recruiting sufficiently sized samples, while keeping the studies logistically and economically feasible. Our paradigm is novel, so we did not have prior research on which to base our sample size determinations. Taking into account the design factors above and expected small effect sizes, we had a recruitment target of 100–125 participants per group (Black men, Black women, White men, and White women) in Studies 1–2 (see recruitment details in "Participants" sections). Study 3, utilized a between-subjects design with a greatly reduced trial number and smaller expected effect sizes; we therefore increased the target to 150–175 participants per group. In all studies, we were able to collect nearly equivalently sized groups of Black and White participants. In addition to online recruitment methods which typically result in undersampling of Black participants (Brownlow et al., 2019), we recruited with postings in the Durham, North Carolina communities. In Study 3, the response rate and funding limitations prevented us from recruiting an equal number of men and women (women comprised approximately two-thirds of the sample; see

“Participants” and “Results” in Study 3).

9. Ethical and open science considerations

The methods of all studies were carried out in accordance with relevant guidelines and regulations, and all experimental protocols were approved by the Duke University institutional review board (Protocol ID: Pro00085829). Informed consent was obtained from all participants. Exclusions were based on repeated participation and failure to complete the study, across all three studies (see “Participants” sections). While these studies were not preregistered, we include two tests of replication (Studies 2–3), one of which employs a variation on the study design that lets us better understand the limits of the observed effects.

10. Data and materials accessibility

The data for all studies are available online at: https://osf.io/3us8g/?view_only=1355c68c8bab4f0c87f5b7e90e0bbbc2. Complete experiment materials and scales used in all studies are provided in the Supplementary material.

11. The present research

In three studies, we investigate the impact of epistemic injustice using an experiment involving a game scenario in which participants shared their knowledge (i.e., information about what they thought happened in a game) or feelings (i.e., how they felt about a game) and received *validating*, *discrediting*, and mildly *insulting* “feedback” about their answers from a purported partner. We measured participants’ affective responses to the feedback and examined the impact of participants’ gender, race, and race-based discrimination on their responses. In all studies, we test four hypotheses (detailed above in the “Hypotheses” section; *H1* – *H4*) concerning (1) affective responses to discrediting relative to validating and insulting feedback; (2) affective responses to feedback after sharing knowledge versus feelings; (3) affective responses to discrediting feedback based on marginalized social group membership; and (4) how affective responses to discrediting feedback relate to experience with discrimination.

12. Study 1

12.1. Study 1 method

In Study 1, participants completed an online experiment that allowed us to test our four hypotheses related to the emotional impact of discrediting feedback and how it might vary based on marginalized social group membership and experience with discrimination.

12.2. Study 1 participants

Participants included 493 online participants. Three participants were excluded for repeat participation. Of the remaining 490 participants ($M_{\text{age}} = 33.6$), 244 selected woman, 243 selected man, 1 selected other, and 2 gave no response. Participants were recruited either via Amazon Mechanical Turk or by advertisements throughout the Durham, North Carolina, community (see “Recruitment Strategy” section). Participants reported their racial background using six categories: Asian or Asian-American: $n = 20$; Black or African-American: $n = 206$; Multiracial: $n = 23$; Native American or Pacific Islander: $n = 4$; Other: $n = 3$; White or European-American: $n = 235$; missing 2. Most participants ($n = 338$) reported annual income between $< \$30,000$ and $< \$59,999$. Participant groups included 111 Black women, 106 White women, 95 Black men, and 125 White men.

12.3. Study 1 procedure

Instructions (Fig. 1a). To start, participants received the instructions. They were told that they would be randomly assigned to either the “Yellow” or “Blue” team for a game in which they could earn points, and that, in this game, the Yellow players were the receivers of points, whereas the Blue players “decided” how the points were to be distributed between players from the two teams. Participants were always assigned the role of receivers, and were told: “Be sure to pay close attention to which of the three option the Blue player selects. You will be asked about their decisions.” They then proceeded to the game.

Game (Fig. 1b). The game was an adapted social value orientation task in which one player chooses between three ways to distribute points between the self and another player; their choice is theorized to indicate their orientation toward interpersonal relating (e.g., prosocial or selfish) (Van Lange et al., 1997). The task is similar to the classic Dictator Game in that they both involve two players, one of whom allocates points or money to them both. They are different in that the social value orientation task has three set options for how points can be allocated: one prosocial even split, and two selfish ways (competitive, and individualistic). The Dictator Game, by contrast, does not typically impose limits on how the Dictator can allocate the total amount across the two players. In our adaptation, the task was not used as a measure of social value orientation. No choices were made by participants; the choices they observed, ostensibly being made by the Blue players, the “deciders,” were fictitious. The game was used to provide realistic context for the prompts for participants’ knowledge or feelings.

We used this task in particular because it involves simple facts, and also evokes different feelings, making it appropriate as a prompt for both the knowledge and feelings version of the study (see below “Sharing knowledge or feeling about the game”). It also requires no preexisting knowledge of information, which could have introduced unnecessary noise in the data. Furthermore, it allows for anonymous, unidentified partners – the numbered “Blue players” – which further reduced noise by minimizing variability from participants’ perceptions of the partners’ social identity/identities. These features enabled us to focus on isolating the aspect of epistemic injustice of interest, emotional responses to baseless discrediting of knowledge.

Participants played 30 rounds of the game, each with a different Blue player (“Blue player 2”, “Blue player 3,” etc.), each containing three trials (i.e., 90 total trials). All Participants experienced rounds ranging in prosociality (i.e., ten prosocial rounds with 2–3 even split trials, twenty individualistic or competitive rounds with 2–3 trials that advantaged the Blue player or disadvantaged the participant) (Van Lange et al., 1997). After the three trials of each round, participants were prompted to share their knowledge or feelings about what they just experienced in the game.

Sharing knowledge or feelings about the game (Fig. 1c). There were two versions of the study, which we call the “knowledge” and “feelings” versions, that varied between subjects (all Studies). In the knowledge version, participants were asked how the game worked, and in the feelings version, participants were asked how they felt about the game. In Studies 1–2, we used multiple-choice questions to gather responses which standardized collection of knowledge and feelings across participants. The multiple-choice question had four answer options, one of which was optimal and three that were suboptimal relative to the round they just saw. For example, in the knowledge version, the answer “Blue player chose the option that allocated them the most points each time” would be appropriate for individualistic, but not prosocial, rounds. We took measures to ensure participants could find reasonable matches to their likely knowledge or feelings¹ to reduce noise from variability in

¹ The stimuli pre-testing method used to create these ecologically valid multiple-choice answers is described in the Supplementary materials in the section “1. Stimuli creation method.”

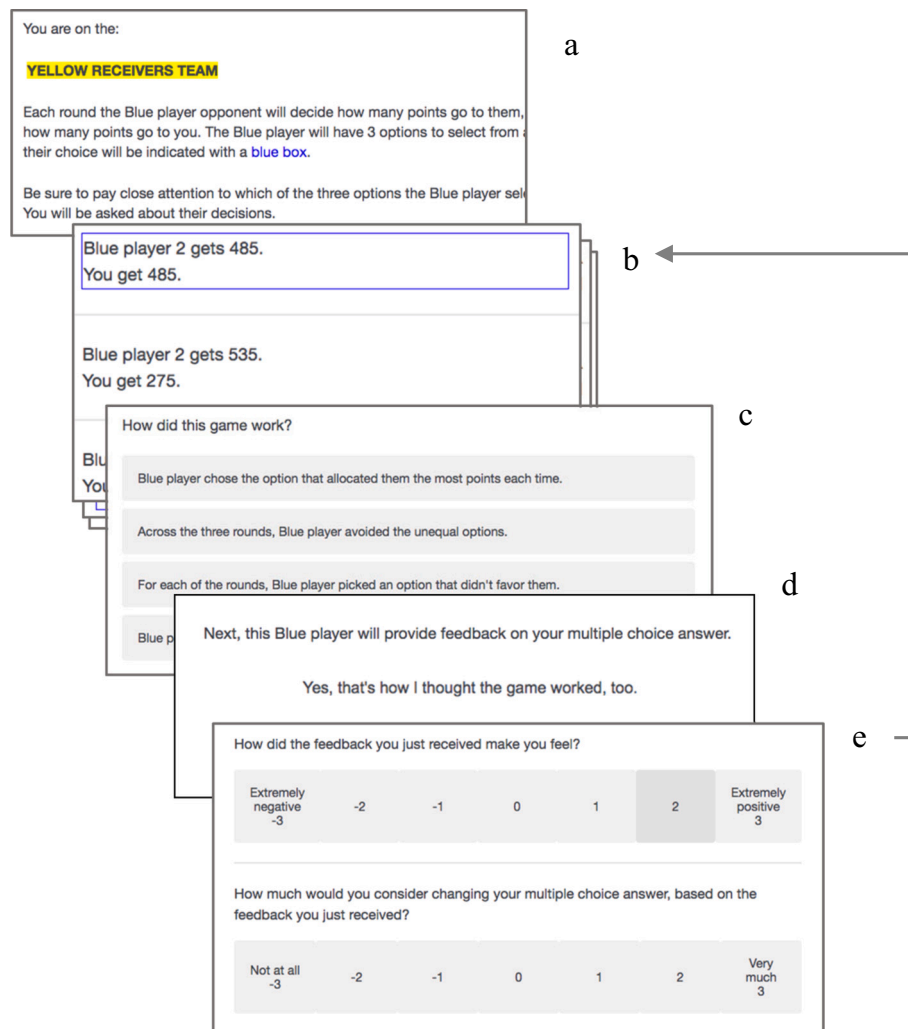


Fig. 1. Study procedure.

Note. See the main text “Procedure” for full description of the procedure (a-e).

knowledgebase familiarity and confidence. As described next, participants’ “accuracy” on the multiple-choice questions was irrelevant to our primary focus on affective responses to the feedback. In Study 3, we used an open text-box to collect participants’ knowledge and feelings (see “Study 3 Procedure”).

Validating, discrediting, and insulting feedback (Fig. 1d). Next, participants received feedback, ostensibly from the Blue player, about the knowledge or feelings they just shared. Participants received an even distribution of three types of feedback, randomly-selected each round from one of the three within-subjects conditions (Studies 1–2; Study 3 varied feedback between-subjects, see “Study 3 Procedure”): validating, discrediting, and insulting feedback.² (1) Validating feedback was positively valenced and affirmed the participant’s response, (2) discrediting feedback was negative or neutral in valence and undermined the correctness of the participant’s choice, and (3) insulting feedback (i.

² All feedback statements, and the method we used to validate the independence of the feedback statements groups in terms of emotional valence, are described in the Supplementary material (2. *Feedback Statements*; 3. *Emotional valence of feedback statements*). Because we take seriously the potential ethical implications of the stimuli in this study, we were careful to design stimuli that would be negative, but not more negative than statements regularly encountered in mainstream media or in stimuli used in other recent social psychological research on insults and “trash-talking” (e.g., Yip et al., 2018).

e., negative social evaluation), was negatively valenced, and entailed “trash-talking” (Yip, Schweitzer, & Nurmohamed, 2018) or mild insults. The following are examples of the feedback:

1. *Validating (knowledge)*: “I get you. In my opinion, your choice shows you understand how the task works just fine.”
2. *Discrediting (knowledge)*: “That isn’t how the game worked. Next time you should pay closer attention to the instructions and events.”
3. *Validating (feelings)*: “I understand what you mean with that choice. Thank you being authentic in picking out how you felt.”
4. *Discrediting (feelings)*: “I don’t understand how you felt that way and picked that. It just doesn’t seem right to me.”
5. *Insult (knowledge & feelings)*: “Okay hilarious. Why did they pair me with someone incompetent?”

Affective Responses (Fig. 1e), *Interest in Changing Answers*, and *Scales* (see Study 1 Measures, next). After receiving feedback, participants provided their affective responses and interest in changing their answers. After the 30 rounds, participants responded to several scale inventories and proceeded to the demographics survey to complete the study.

12.4. Study 1 measures

Affective Responses. Participants provided their affective responses

with the prompt “How did the feedback you just received make you feel?” Responses were provided using scales displaying points -3 , -2 , -1 , 0 , 1 , 2 , 3 (anchors for affect: -3 = Extremely negative, 3 = Extremely positive).

Interest in Changing Answers. Participants indicated their interest in changing their answers with the prompt “How much would you consider changing your multiple-choice answer, based on the feedback you just received?”. Responses were provided using scales displaying points -3 , -2 , -1 , 0 , 1 , 2 , 3 (anchors for change answer: -3 = Not at all, 3 = Very much).

Scales. Participants completed the Race-Based Traumatic Symptoms Scale (RBTSS; Carter et al., 2013), the Life Events Questionnaire (LEQ; Brugha & Cragg, 1990), PTSD (CAPS) inventory (Blake et al., 1995), the Justice Sensitivity Index - Victim Sensitivity subscale (JSI-V; Schmitt et al., 2010), and a short demographics questionnaire. Full scales are available in the Supplementary material.

The RBTSS measured self-reported physiological and psychological responses to a self-reported experience of racism (e.g., “I experience mental images of the event”), with intensity levels per item ranging from 0 to 4. This measure generated a score indicating the intensity with which a participant was actively coping with traumatic symptoms related to racial discrimination. The LEQ elicited subjects’ experience with a range of difficult life events, such as losing a job and health emergencies. Participants were then asked to complete the truncated CAPS inventory, which measured (1) intensity and (2) frequency of various physiological and psychological trauma symptoms (e.g., hypervigilance, trouble sleeping) for the most difficult event they reported in the LEQ. The CAPS (1&2) measures reflect post-traumatic stress symptomology related to the event which the participant considered most difficult from those polled in the LEQ. We included these measures to understand whether coping with race-based discrimination would predict affective responses to discrediting distinctly compared to coping with other difficult life events. Finally, the JSI-V (Justice Sensitivity Index - Victim Sensitivity subscale) measured participants’ negative emotional responses to unfairness in terms of how advantages and disadvantages are distributed to themselves. We included this measure to understand whether affective responses to discrediting were linked more generally to dislike of personal unfairness, rather than coping with racial discrimination specifically.

12.5. Study 1 results

12.5.1. Study 1 results: affective responses

We conducted our analyses in SPSS Version 29.0.0.0. We conducted a repeated measures general linear model with the 3-level within-subjects factor for affective responses after feedback labeled “Feedback” (validating, discrediting, and insulting), and three between-subjects factors: “Gender” (male, female), “Race” (Black, White; representing selection of “Black or African-American” or “White or European-American,”) and experiment “Version” (knowledge, feelings). Table 1 contains the means and standard errors for affective responses by feedback condition, gender, and race in Studies 1–3. Table 2 contains the results with significant effects and interactions indicated in bold, for Studies 1–3. Fig. 2 illustrates the findings for H1 and H2 for Studies 1–3. Fig. 3 illustrates the individual differences observed in Studies 1–3, relevant to H3.

H1. First, results supported the portion of H1 proposing that: **Affective responses to validating feedback will be more positive than responses to discrediting and insulting feedback.** There was a large size significant within-subjects effect ($\eta^2 p = .642$) of feedback (see Table 2 and Fig. 2), and all pairwise comparisons among validating ($M(SEM) = 1.06(0.05)$), discrediting ($M = -0.82(0.06)$), and insulting feedback ($M = -1.36(0.06)$) conducted using t -tests with Bonferroni adjustments were significant (validating vs discrediting, $t(475) = 27.66, p < .001$; validating vs insulting, $t(473) = 30.38, p < .001$; discrediting vs insulting, $t(478) = 17.43, p < .001$).

H2. Second, the interaction of feedback and version provided some

initial support for H2: **Affective responses to discrediting of knowledge will be more negative than discrediting of feelings.** Follow-up t -tests with Bonferroni adjustments indicated that affective responses to discrediting feedback were more negative in the knowledge compared to the feelings version ($t(483) = -2.47, p = .041$), see Fig. 2 for graph and means. Affective responses to validating feedback did not differ between versions ($t(477) = 1.58, p = .345$), nor did affective responses to insulting feedback ($t(481) = 0.663, p = 1$).

H3. Third, there was support for H3, which proposed that: **Participants from marginalized social groups will have increased or decreased negative affective responses to discrediting feedback compared to participants not from marginalized social groups.** There was an interaction of feedback and gender (see Table 2); follow-up Bonferroni-corrected t -tests indicated that men, on average, rated discrediting feedback ($t(481) = -3.31, p < .003$) as less negative than women. There was an interaction of feedback and race; Bonferroni-corrected t -tests indicated that White participants, on average, rated discrediting feedback ($t(432) = 4.58, p < .001$) as more negative than Black participants. Furthermore, there was a 3-way interaction of feedback, gender, and race (see statistics in Table 2, see Fig. 3). Bonferroni-corrected t -tests indicated that among Black participants, men rated discrediting feedback less negatively than women ($t(203) = -6.75, p < .001$), whereas among White participants, men and women did not rate discrediting feedback differently ($p = 1$). Additionally, Black and White women did not rate discrediting feedback differently ($t(213) = -0.344, p = 1$) nor did White men and Black women ($t(233) = -0.443, p = 1$), while Black men rated discrediting feedback more positively than White men ($t(216) = 6.73, p < .001$); Black women ($t(203) = 6.75, p < .001$), and White women ($t(196) = 6.00, p < .001$).

Finally, there was a 4-way interaction of feedback, gender, race, and version; Bonferroni-corrected t -tests indicated some nuances in responses to discrediting feedback across the knowledge and feelings versions. Among White men, discrediting feedback was rated more negative in the knowledge version compared to the feelings version ($t(122) = -2.54, p = .036$). White men rated discrediting feedback as more negative than Black men in both the feelings ($t(105) = 3.75, p < .001$) and knowledge versions ($t(109) = 5.61, p < .001$). Also, among Black participants, men’s affective responses to discrediting feedback were less negative than women’s in both the feelings ($t(104) = 4.41, p < .001$) and knowledge versions ($t(97) = 5.09, p < .001$).

Ancillary to the hypotheses, we also observed a significant main effect of gender (men’s responses ($M(SEM) = -0.192(0.06)$) were on average less negative than women’s ($M = -0.459(0.06)$), a significant main effect of race (White participants’ ($M = -0.540(0.06)$) responses were on average more negative than Black participants’ ($M = -0.111(0.06)$); and a significant interaction between gender and race (Black men’s responses ($M = 0.262(0.09)$) were less negative than White men’s ($M = -0.645(0.08)$), White women’s ($M = -0.435(0.09)$), and Black women’s ($M = -0.483(0.08)$). Follow-up t -tests with Bonferroni adjustments indicated that Black and White men’s affective responses significantly differed ($t(218) = 6.32, p < .001$) as did Black men’s and Black women’s affective responses significantly differed ($t(204) = 5.27, p < .001$), whereas White men’s and White women’s ($t(229) = -2.13, p = .102$) and Black and White women’s did not ($t(215) = -0.609, p = 1$).

Additionally, for the interaction of feedback and gender, Bonferroni-corrected t -tests indicated that men, on average, rated insulting feedback as less negative than women ($t(480) = -3.38, p = .002$) and validating feedback as less positive ($t(476) = 3.52, p = .001$) than women.

For the interaction of feedback and race, Bonferroni-corrected t -tests additionally indicated that White participants, on average, rated insulting feedback as more negative than Black participants ($t(431) = 3.33, p = .003$) and validating feedback as less positive than Black participants ($t(428) = 2.42, p = .048$).

For the 3-way interaction of feedback, gender, and race, Bonferroni-corrected t -tests additionally indicated that among Black participants, men rated insulting feedback less negatively compared to women (t

Table 1
Average affective responses by feedback condition, gender, and race in Studies 1–3.

			Knowledge						Feelings					
			Study 1		Study 2		Study 3		Study 1		Study 2		Study 3	
			M	SE	M	SE	M	SE	M	SE	M	SE	M	SE
Women	Black	Validating	1.38	.14	1.65	.13	4.64	.21	1.13	0.14	1.22	.12	4.77	.24
		Discrediting	-1.14	.16	-1.12	.14	2.53	.25	-0.93	0.15	-0.74	.13	3.05	.22
		Insulting	-1.68	.18	-1.43	.16	2.49	.21	-1.65	0.18	-1.45	.15	2.66	.25
Men	Black	Validating	1.26	.15	1.41	.15	4.93	.36	1.09	0.16	1.25	.16	4.78	.29
		Discrediting	0.14	.17	-0.83	.16	2.96	.28	-0.04	0.17	-0.49	.17	4.12	.34
		Insulting	-0.08	.2	-1.05	.19	3.00	.35	-0.8	0.2	-1.12	.2	2.28	.28
Women	White	Validating	1.26	.15	1.54	.14	5.00	.25	1.24	0.14	1.33	.14	5.41	.22
		Discrediting	-1.15	.16	-1.18	.15	1.93	.26	-0.86	0.16	-1.19	.15	3.07	.25
		Insulting	-1.43	.19	-1.54	.17	2.45	.25	-1.67	0.18	-1.97	.18	2.39	.22
Men	White	Validating	0.83	.13	0.87	.14	5.3	.29	0.66	0.14	0.76	.14	4.1	.31
		Discrediting	-1.37	.14	-1.52	.15	2.57	.29	-0.84	0.15	-0.89	.15	2.48	.27
		Insulting	-1.73	.17	-1.85	.18	2.76	.28	-1.43	0.18	-1.63	.18	2.5	.31

Note. Validating, discrediting, and insulting feedback was varied within-subjects and scales ranged from -3 (extremely negative) to 3 (extremely positive) with 0 as the midpoint in Studies 1–2. Feedback was varied between-subjects in Study 3 and scales ranged from 1 (extremely negative) to 7 (extremely positive) with 4 as the midpoint in Study 3.

Table 2
Results of analyses of affective responses to feedback in Studies 1–3.

	Study 1				Study 2				Study 3			
	F	df	p	η^2p	F	df	p	η^2p	F	df	p	η^2p
Gender	9.62	1	.002	.023	0.05	1	.831	<.001	1.09	1	.296	.002
Race	24.74	1	<.001	.057	22.09	1	<.001	.045	2.83	1	.093	.004
Version	0.13	1	.720	<.001	0.02	1	.894	<.001	0.59	1	.445	.001
Gender × Race	30.61	1	<.001	.069	5.53	1	.019	.012	3.37	1	.067	.005
Gender × Version	0.17	1	.681	<.001	2.60	1	.108	.005	6.99	1	.008	.010
Race × Version	2.91	1	.089	.007	0.001	1	.974	<.001	0.76	1	.384	.001
Gender × Race × Version	2.63	1	.106	.006	1.54	1	.216	.003	3.47	1	.063	.005
Feedback	742.15	2	<.001	.642	1064.50	2	<.001	.693	166.89	2	<.001	.335
Feedback × Gender	27.16	2	<.001	.062	10.92	2	<.001	.023	2.12	2	.121	.006
Feedback × Race	3.91	2	.020*	.009	1.61	2	.200	.003	4.76	2	.009	.014
Feedback × Version	5.25	2	.005*	.013	10.52	2	<.001	.022	7.14	2	.001	.021
Feedback × Gender × Race	6.03	2	.003*	.014	0.45	2	.641	.001	1.55	2	.213	.005
Feedback × Gender × Version	0.03	2	.966	<.001	0.13	2	.875	<.001	0.73	2	.482	.002
Feedback × Race × Version	0.67	2	.515	.002	0.37	2	.692	.001	0.48	2	.619	.001
Feedback × Gender × Race × Version	4.15	2	.016*	.010	1.88	2	.153	.004	3.05	2	.048	.009

Note. Between-subjects effects and interactions in Studies 1 and 2: Gender, Race, Version, Gender × Race, Gender × Version, Race × Version, and Gender × Race × Version (Error for between-subjects effects for Study 1 = 413, Study 2 = 472; Error for within-subjects effects for Study 1 = 826, Study 2 = 944). All effects and interactions were between subjects in Study 3 (Error = 664).

* Greenhouse-Geisser adjusted p-values < .05.

(202) = 6.05, $p < .001$); no difference in validating feedback ($t(200) = -0.468$, $p = 1$); among White participants, men rated validating feedback less positively than women ($t(225) = -3.89$, $p < .001$); no difference in insulting feedback ($t(226) = -0.162$, $p = 1$). Additionally, Black and White women did not rate validating feedback differently ($t(214) = 0.019$, $p = 1$), nor insulting feedback differently ($t(213) = -0.783$, $p = 1$); White men did not rate validating feedback differently than Black men ($t(211) = 3.07$, $p = .007$), but rated insulting feedback more negatively than Black men ($t(215) = 5.45$, $p < .001$).

Finally, for the 4-way interaction, Bonferroni-corrected t -tests indicated that White men rated insulting feedback as more negative than Black men ($t(109) = 5.60$, $p < .001$) within the knowledge version. And, among Black participants, men’s ratings of insulting feedback were less negative than women’s in the feelings version ($t(104) = 3.13$, $p = .007$) and the knowledge version ($t(96) = 5.57$, $p < .001$); while among White participants, men’s ratings of validating feedback were less positive than women’s in the feelings version ($t(111) = -3.45$, $p = .002$).

H4. Fourth, there was support for H4, which proposed: **Race-based discrimination will predict individual differences in responses to discrediting feedback.** We conducted a series of 2-tailed Pearson’s correlational analyses on affective responses to the feedback types and RBTSS scores, for Black and White men and women. As predicted, we observed

a correlation between affective responses for discrediting feedback and RBTSS scores, in the positive direction, for Black men (Table 3). RBTSS scores were uncorrelated with affect ratings for Black women, White women, and White men.³ Black men with higher RBTSS scores also reported higher affect ratings after insulting feedback. In addition, Black men’s affective responses to discrediting and insulting feedback were associated with increased stressful life events and post-traumatic stress symptom intensity and frequency; however, these scales – and not RBTSS – also predicted higher ratings for validating feedback, suggesting a more specific connection between race-based trauma and responses to discrediting and insulting feedback for Black men. Smaller positive and negative correlations (Table 3) were observed for the JSI-V measure and affective responses to feedback that differed across Black

³ See the Supplemental material for additional analyses of differences in the scale measures based on race and gender for all studies and Fig. S2 “Scatterplots for the correlation between RBTSS and affect after discrediting.” Note that experiment version (knowledge, feelings) did not affect RBTSS scores (p ’s > 0.2), nor any of the other individual differences measures (Study 1: LEQ $p = .925$, JSI-V $p = .314$, CAPS 1 & 2 p ’s > .414; Study 2: LEQ $p = .122$, JSI-V $p = .059$, CAPS 1 & 2 p ’s > .162; Study 3: LEQ $p = .830$, JSI-V $p = .200$, CAPS 1 & 2 p ’s > .621).

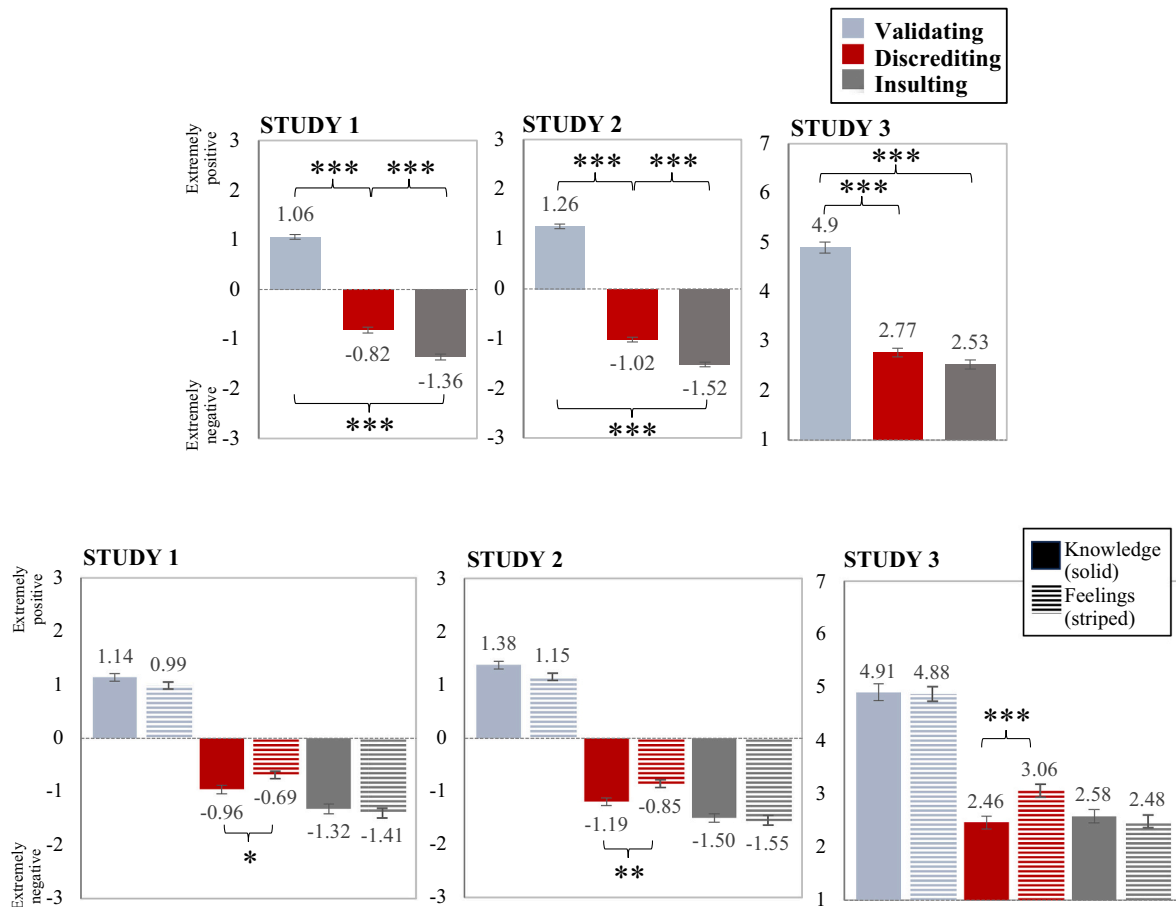


Fig. 2. Average affective responses to validating, discrediting, and insulting feedback (top panels) and responses broken down by knowledge/feelings experiment version (bottom panels) showing negative affect was increased after discrediting of knowledge relative to feelings, while experiment version had no effects on affect after validating or insulting feedback.

Note. Error bars indicate standard error of the mean. In all studies, whether participants provided their knowledge or feelings was varied between-subjects. * $p < .05$, ** $p < .01$, *** $p < .001$.

and White men and women.

12.5.2. Study 1 results: interest in changing answers

We conducted a repeated measures general linear model with the 3-level within-subjects factor for participants' interest in changing their answers after feedback (validating, discrediting, and insulting), and three between-subjects factors: "Gender" (male, female), "Race" (Black, White; representing selection of "Black or African-American" or "White or European-American,") and experiment "Version" (knowledge, feelings). Table 4 contains the means and standard errors by feedback condition, gender, and race in Studies 1–3. Table 5 contains the statistical results, with significant effects and interactions indicated in bold, for Studies 1–3.

There was a significant main effect of gender, indicating interest in changing answers was higher for men ($M(SEM) = -1.34(0.10)$) than women ($M = -1.89(0.10)$), a significant main effect of race indicating interest in changing answers was higher for Black participants ($M = -1.25(0.10)$) compared to White participants ($M = -1.97(0.10)$); and an interaction between gender and race. Bonferroni adjusted t -tests indicated interest in changing answers was higher for Black men ($M = -0.75(0.21)$) than all other groups (White men: $M = -1.83(0.12)$, $t(218) = 4.78$, $p < .001$; Black women: $M = -1.69(0.12)$, $t(204) = 4.09$, $p < .001$; White women: $M = -2.05(0.11)$, $t(199) = 5.77$, $p < .001$), while White men and women's ratings did not significantly differ ($t(229) = 1.38$, $p = .504$), nor did Black and White women's ($t(215) = 2.82$, $p = .07$).

There was a significant effect of feedback; Bonferroni adjusted t -tests indicated participants were similarly unlikely to be interested in changing their answers after validating ($M(SEM) = -1.73(0.07)$) and insulting feedback ($M = -1.64(0.07)$, $t(476) = -1.89$, $p = .180$). Interest was significantly higher after discrediting feedback ($M = -1.51(0.07)$) relative to both validating ($t(477) = -4.67$, $p < .001$) and insulting ($t(478) = 3.92$, $p < .001$) feedback. The interaction of feedback and version indicated discrediting only differed from validating and insulting feedback at the $p < .001$ level in the knowledge version; the difference between discrediting feedback and validating feedback was smaller ($t(237) = -2.45$, $p = .045$) and discrediting did not differ from insulting feedback ($t(238) = -0.404$, $p = 1$) in the feelings version.

Finally, there was a significant interaction of feedback and gender. Bonferroni adjusted t -tests indicated that women compared to men were significantly less interested in changing their answers after validating feedback ($t(478) = -4.25$, $p < .001$); no gender difference was found for interest after discrediting ($t(481) = -2.03$, $p = .129$) or insulting ($t(480) = -2.28$, $p = .070$) feedback. Among women, validating feedback reduced interest in changing answers relative to insulting feedback ($t(238) = -3.13$, $p = .006$; but did not for men: $t(236) = 0.565$, $p = 1$); and, validating feedback reduced interest relative to discrediting feedback ($t(237) = -5.22$, $p = .006$; but did not for men: $t(238) = -1.13$, $p = .778$). Among women, discrediting feedback increased interest relative to insulting feedback ($t(239) = 3.19$, $p = .005$; but did not for men: $t(237) = 2.28$, $p = .07$).

In sum, discrediting feedback reduced participants' perceptions of

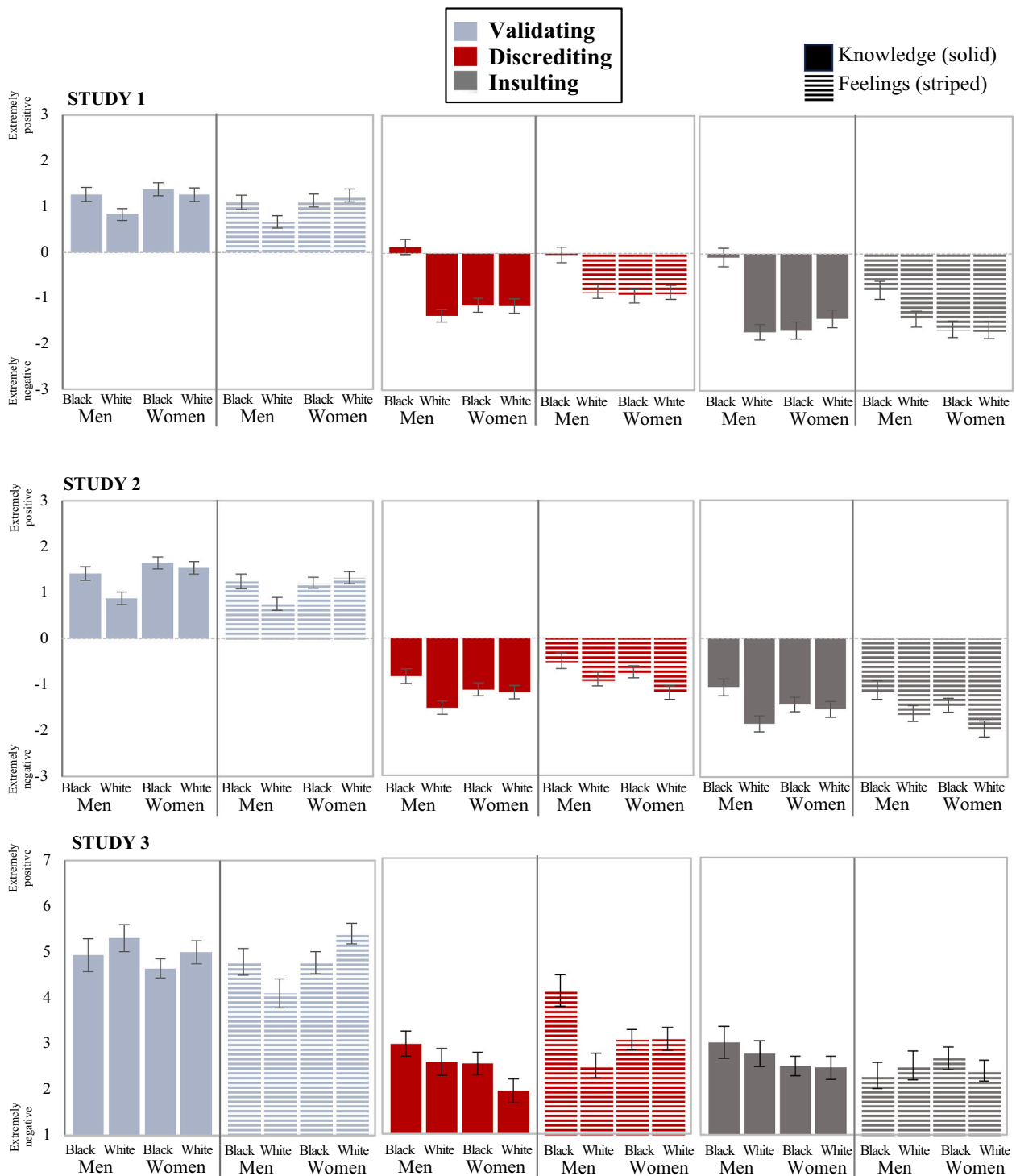


Fig. 3. Individual differences in affective responses to validating, discrediting, and insulting feedback in the knowledge and feelings versions in Studies 1–3. Note. Error bars represent standard error of the mean. Self-reported affect scale ranged from –3 (extremely negative) to 3 (extremely positive) with 0 as the midpoint in Studies 1–2, and 1–7, with 4 as the midpoint in Study 3 (same anchors).

their own correctness more so than validating and insulting feedback, as would be expected from the condition meant to intervene on a person’s epistemic authority. We observed some individual differences, including that White participants and women were less interested in changing their answers, Black men were most interested, and women were more reassured by validating feedback.

13. Study 2 method

In Study 2, we sought to corroborate the results of Study 1 by replicating the findings with a new sample of online participants.

13.1. Study 2 participants

Participants who completed the study included 502 online

Table 3
Correlations among affective responses to feedback and race-based traumatic symptoms, stressful life events, post-traumatic stress, and sensitivity to injustice.

		STUDY 1					STUDY 2					STUDY 3					
		Feedback	RBTSS	LEQ	CAPS1	CAPS2	JSI-V	RBTSS	LEQ	CAPS1	CAPS2	JSI-V	RBTSS	LEQ	CAPS1	CAPS2	JSI-V
Women																	
Black	Validating	-.128	.214*	.024	-.011	-.036	.183*	.062	.059	.021	-.006	.150	-.054	.120	.138	-.026	
	Discrediting	-.093	-.061	.020	-.010	-.267**	.128	-.005	-.025	.082	-.173*	-.311**	-.054	-.118	-.057	-.163	
	Insulting	-.027	-.036	.026	.047	-.292**	.143	.011	-.030	.099	-.183*	-.089	.002	-.026	-.069	-.049	
White	Validating	.002	.011	.032	.026	.061	-.032	.056	-.051	-.046	.117	.281*	.026	.275*	.298*	-.013	
	Discrediting	.034	.136	.221*	.180	-.184	.109	.090	.117	.122	-.180*	-.102	-.184	-.184	-.207	-.085	
	Insulting	.037	.102	.167	.160	-.264**	.080	.034	.029	.025	-.208*	.185	.014	.238*	.197	.076	
Men																	
Black	Validating	.114	.305**	.436**	.480**	.235*	.225*	.218*	.218*	.141	.162	.109	-.124	.143	.220	.313	
	Discrediting	.385**	.231*	.631**	.672**	.283**	.403**	-.011	.417**	.329**	-.003	.339*	.104	.129	.344*	.091	
	Insulting	.453**	.288**	.588**	.639**	.320**	.413**	.063	.437**	.396**	.061	.310*	-.060	.221	.266	.046	
White	Validating	.146	-.038	.079	.089	-.008	.065	.031	-.039	-.051	.100	-.032	-.064	-.174	-.246	-.203	
	Discrediting	.152	-.041	.162	.156	-.190*	.043	.071	.064	.083	-.123	-.203	.262	-.064	-.149	-.155	
	Insulting	.049	-.096	.085	.084	-.196*	.013	.012	.095	.127	-.089	-.001	-.345*	-.186	-.097	-.012	

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). RTBSS = Race-based traumatic symptom scale; LEQ = Life event questionnaire; CAPS1 & 2= PTSD inventory, severity (1) and frequency (2) of symptoms; and JSI-V = Justice sensitivity index - Victim subscale.

2x Replicated
1x Replicated
Not replicated

Table 4
Average interest in changing answers by feedback condition, gender, and race in Studies 1–3.

			Knowledge						Feelings					
			Study 1		Study 2		Study 3		Study 1		Study 2		Study 3	
			M	SE	M	SE	M	SE	M	SE	M	SE	M	SE
Women	Black	Validating	-2.17	.21	-2.08	.17	2.22	.27	-1.77	.20	-2.14	.16	1.39	.33
		Discrediting	-1.33	.21	-1.57	.17	2.94	.32	-1.57	.20	-2.05	.17	2.38	.34
		Insulting	-1.71	.21	-1.84	.17	2.23	.28	-1.64	.20	-1.90	.16	1.97	.33
Men	Black	Validating	-0.58	.22	-1.96	.20	2.00	.47	-1.02	.22	-1.20	.21	2.22	.38
		Discrediting	-0.61	.23	-1.43	.20	3.60	.36	-0.94	.23	-1.11	.22	2.52	.38
		Insulting	-0.63	.23	-1.58	.20	2.75	.45	-1.06	.22	-0.96	.21	2.48	.36
Women	White	Validating	-2.17	.22	-2.35	.18	2.17	.31	-2.26	.21	-2.22	.18	2.03	.29
		Discrediting	-1.87	.22	-1.74	.19	1.74	.28	-2.08	.21	-2.25	.19	1.81	.33
		Insulting	-2.15	.22	-1.96	.18	2.31	.32	-1.92	.21	-2.17	.18	1.95	.29
Men	White	Validating	-1.96	.19	-2.24	.18	2.09	.38	-1.87	.20	-1.79	.18	2.05	.41
		Discrediting	-1.73	.19	-1.86	.19	3.53	.44	-1.84	.20	-1.75	.19	1.59	.35
		Insulting	-2.02	.19	-2.01	.18	2.68	.36	-1.82	.20	-1.72	.18	2.60	.41

Note. Validating, discrediting, and insulting feedback was varied within-subjects and scales ranged from -3 (extremely negative) to 3 (extremely positive) with 0 as the midpoint in Studies 1–2. Feedback was varied between-subjects in Study 3 and scales ranged from 1 (extremely negative) to 7 (extremely positive) with 4 as the midpoint in Study 3.

participants ($M_{age} = 37.05$; 275 women, 225 men, 2 selected “other”) recruited via Amazon Mechanical Turk. Four participants were excluded for repeat participation. Participants reported their racial background: Asian or Asian-American: $n = 2$; Black or African-American: $n = 253$; Multiracial: $n = 4$; Native American or Pacific Islander: $n = 1$; Other: $n = 1$; White or European-American: $n = 239$. Again, most participants ($n = 308$) selected an annual income of <\$30,000 to <\$59,999. Participant groups included 149 Black women, 120 White women, 100 Black men, and 119 White men.

13.2. Study 2 procedure

The procedure was identical to Study 1 (see “Study 1 Procedure” for full description, and illustration in Fig. 1). In short, participants observed 30 rounds of an allocation game in which their (fictious) partners distributed points between themselves and the participants. Each round, participants answered a question about either *how the game worked* (knowledge version) or *how they felt about the game* (feelings version), and then received either validating, discrediting, or insulting feedback from the purported partner (randomly-selected, presented evenly). Participants then provided their affective response to the

feedback and interest in changing their answer; and, after the 30 rounds of the game, responded to the scale inventories and demographics survey to complete the study (see Study 2 Measures).

13.3. Study 2 measures

Affective Responses. As in Study 1, participants provided their affective responses with the prompt “How did the feedback you just received make you feel?” Responses were provided using scales displaying points - 3, -2, -1, 0, 1, 2, 3 (anchors for affect: -3 = Extremely negative, 3 = Extremely positive).

Interest in Changing Answers. As in Study 1, participants provided their interest in changing their answers with the prompt “How much would you consider changing your multiple-choice answer, based on the feedback you just received?”. Responses were provided using scales displaying points -3, -2, -1, 0, 1, 2, 3 (anchors for change answer: -3 = Not at all, 3 = Very much).

Scales. Participants completed the same scales and inventories as in Study 1: the Race-Based Traumatic Symptoms Scale (RBTSS: Carter et al., 2013), the Life Events Questionnaire (LEQ: Brugha & Cragg, 1990), PTSD (CAPS) inventory (Blake et al., 1995), the Justice

Table 5
Results of analyses of participants' interest in changing answers in Studies 1–3.

	Study 1				Study 2				Study 3			
	<i>F</i>	<i>df</i>	<i>p</i>	η^2p	<i>F</i>	<i>df</i>	<i>p</i>	η^2p	<i>F</i>	<i>df</i>	<i>p</i>	η^2p
Gender	15.37	1	<.001	.036	11.14	1	<.001	.023	8.23	1	.004	.012
Race	26.68	1	<.001	.060	9.21	1	.003	.019	9.27	1	.002	.014
Version	0.27	1	.603	.001	0.91	1	.341	.002	1.54	1	.215	.002
Gender × Race	6.16	1	.013	.015	2.06	1	.152	.004	0.39	1	.532	.001
Gender × Version	0.52	1	.472	.001	7.12	1	.008	.015	0.00	1	.957	<.001
Race × Version	0.42	1	.518	.001	0.33	1	.565	.001	0.03	1	.865	<.001
Gender × Race × Version	1.02	1	.314	.002	0.39	1	.535	.001	1.52	1	.218	.002
Feedback	12.52	2	<.001	.029	17.52	2	<.001	.036	4.08	2	.017	.012
Feedback × Gender	6.47	2	.002	.015	0.09	2	.917	<.001	2.12	2	.121	.006
Feedback × Race	0.51	2	.603	.001	0.42	2	.660	.001	0.93	2	.390	.003
Feedback × Version	4.09	2	.017*	.010	10.75	2	<.001	.022	3.21	2	.041	.010
Feedback × Gender × Race	2.22	2	.109	.005	0.24	2	.786	.001	3.71	2	.025	.011
Feedback × Gender × Version	1.94	2	.144	.005	0.25	2	.779	.001	0.52	2	.596	.002
Feedback × Race × Version	2.17	2	.115	.005	0.40	2	.674	.001	0.11	2	.895	<.001
Feedback × Gender × Race × Version	2.60	2	.075	.006	0.36	2	.701	.001	0.83	2	.436	.002

Note. Between-subjects effects and interactions in Studies 1 and 2: Gender, Race, Version, Gender × Race, Gender × Version, Race × Version, and Gender × Race × Version (Error for between-subjects effects for Study 1 = 417, Study 2 = 469; Error for within-subjects effects for Study 1 = 834, Study 2 = 938). All effects and interactions were between subjects in Study 3 (Error = 664).

* Greenhouse-Geisser adjusted *p*-values < .05.

Sensitivity Index - Victim Sensitivity subscale (JSI-V; Schmitt et al., 2010), and a short demographics questionnaire. All scales are available in full in the Supplementary material.

13.4. Study 2 results

13.4.1. Study 2 results: affective responses

We again conducted a repeated measures general linear model with the 3-level within-subjects factor for affective responses after feedback labeled “Feedback” (validating, discrediting, and insulting), and three between-subjects factors: “Gender” (male, female), “Race” (Black, White; representing selection of “Black or African-American” or “White or European-American,”) and experiment “Version” (knowledge, feelings). Table 1 contains the means and standard errors for affective responses by feedback condition, gender, and race in Studies 1–3. Table 2 contains the results with significant effects and interactions indicated in bold, for Studies 1–3. Fig. 2 illustrates the findings for H1 and H2 for Studies 1–3. Fig. 3 illustrates the individual differences observed in Studies 1–3, relevant to H3.

H1. First, replicating Study 1, results supported the portion of H1: **Affective responses to validating feedback will be more positive than responses to discrediting and insulting feedback.** There was a large size significant within-subjects effect ($\eta^2p = .712$) of feedback (see Table 2 and Fig. 2), and all pairwise comparisons among validating ($M(SEM) = 1.26(0.05)$), discrediting ($M = -1.02(0.05)$), and insulting feedback ($M = -1.52(0.06)$) conducted using *t*-tests with Bonferroni adjustments were significant (validating vs discrediting, $t(489) = 33.09$, $p < .001$; validating vs insulting, $t(490) = 35.12$, $p < .001$; discrediting vs insulting, $t(494) = 17.35$, $p < .001$).

H2. Second, the interaction of feedback and version provided support for H2: **Affective responses to discrediting of knowledge will be more negative than discrediting of feelings.** Follow-up *t*-tests with Bonferroni adjustments indicated that affective responses to discrediting feedback were more negative in the knowledge versus feelings version ($t(493) = -3.27$, $p < .003$), see Fig. 2 for graph and means. Affective responses to validating feedback ($t(489) = 2.32$, $p = .063$) and insulting feedback did not vary across versions ($t(496) = 0.391$, $p = 1$).

H3. Third, there was some support for H3, which proposed that: **Participants from marginalized social groups will have increased or decreased negative affective responses to discrediting feedback compared to participants not from marginalized social groups.** There was an interaction of feedback and gender (see Table 2); follow-up Bonferroni-corrected *t*-tests indicated that there was no significant difference

between men's and women's ratings of discrediting feedback ($t(491) = -0.747$, $p = 1$). There was no interaction between feedback and race, or among feedback × gender × race, as in Study 1, so we probed discrediting feedback specifically. Bonferroni-corrected *t*-tests indicated that Black men's ratings of discrediting were significantly higher than White men's ($t(214) = 3.30$, $p = .003$) and White women's ($t(216) = 3.19$, $p = .005$), but not different from Black women's this time ($t(245) = 1.53$, $p = .380$).

Ancillary to hypotheses, there was a significant main effect of race indicating, as in Study 1, White participants' ratings ($M(SEM) = -0.605(0.06)$) were on average more negative than Black participants' ($M = -0.225(0.06)$). There was also a significant interaction between gender and race. Follow-up Bonferroni-corrected *t*-tests indicated Black men's ratings were less negative on average than White men's ($t(217) = 4.72$, $p < .001$) whereas Black and White women's ratings did not significantly differ ($t(267) = 1.77$, $p = .232$) The differences in average ratings between men and women also were not significant for Black participants ($t(247) = 1.60$, $p = .331$) or White participants ($t(237) = -2.22$, $p = .083$). The interaction of feedback and gender (see Table 2) also indicated that there was also no difference between men's and women's ratings of insulting feedback ($t(494) = -1.28$, $p = .602$); men rated validating feedback less positively compared to women ($t(487) = 3.78$, $p < .001$).

H4. Supporting H4, **Race-based discrimination will predict individual differences in responses to discrediting feedback,** higher RBTSS scores were again associated with less negative affect (higher affect ratings) after discrediting and insulting feedback for Black men (see correlations in Table 3). This time, small positive correlations were observed between RBTSS scores and affect after validating feedback for Black men and women. In addition, Black men's affective responses to discrediting and insulting feedback were again associated with increased post-traumatic stress symptom intensity and frequency; post-traumatic stress symptom intensity and stressful life events were again also associated with affect after validation. Finally, some of the smaller correlations observed in Study 1 between the JSI-V scale and responses to feedback were observed in Study 2 for women (Table 3).

13.5. Study 2: comparative summary for affective responses

Study 2 used the same procedure as Study 1. Some patterns in the results replicated. First, on average, validating feedback was again assessed more positively than discrediting and insulting feedback, which differed from each other (H1). Second, on average, discrediting in the knowledge version was again rated more negatively than discrediting in the feelings version (H2). Third (H3), Black men's ratings were again

less negative for discrediting feedback compared to White men's and women's. Moreover, men generally rated validating feedback more negatively compared to women. Finally (H4), for the second time, positive correlations between RBTSS scores and Black men's affect after discrediting and insulting feedback, and between Black men's post-traumatic symptom frequency and affect after discrediting feedback, were replicated (and only these correlations).

13.5.1. Study 2 results: interest in changing answers

We again conducted a repeated measures general linear model with the 3-level within-subjects factor for participants' interest in changing their answers after feedback (validating, discrediting, and insulting), and three between-subjects factors: "Gender" (male, female), "Race" (Black, White; representing selection of "Black or African-American" or "White or European-American,") and experiment "Version" (knowledge, feelings). Table 4 contains the means and standard errors by feedback condition, gender, and race in Studies 1–3. Table 5 contains the results with significant effects and interactions indicated in bold, for Studies 1–3.

As in Study 1, there was a significant main effect of gender; interest in changing answers was again higher for men ($M(SEM) = -1.63(0.09)$) than women ($M = -2.02(0.08)$). There was a significant main effect of race, indicating interest in changing answers was again higher for Black participants ($M = -1.65(0.08)$) compared to White participants ($M = -2.01(0.08)$). There was an interaction between gender and version; follow-up Bonferroni adjusted t -tests indicated that interest in changing answers was slightly, but non-significantly, increased in the feelings relative to the knowledge version for men ($t(219) = -2.13, p = .068$), while among women, ratings did not vary by version ($t(272) = 1.00, p = .635$); and, within the feelings version, men were more interested in changing their answers relative to women ($t(244) = -3.97, p < .001$) while no gender differences were observed for the knowledge version ($t(247) = -0.702, p = .967$).

There was a significant effect of feedback; Bonferroni adjusted t -tests indicated participants were significantly less interested in changing their answers after validating feedback ($M(SEM) = 2.00(0.07)$) compared to discrediting feedback ($M = -1.72(0.067)$, $t(488) = -5.02, p < .001$) and insulting feedback ($M = -1.77(0.07)$, $t(490) = -3.95, p < .001$), which did not differ from each other ($t(489) = 1.56, p = .359$). Probing the interaction between feedback and version revealed that differences among the feedback types existed in the knowledge, not feelings, version. Bonferroni adjusted t -tests indicated that in the knowledge version, participants were significantly less interested in changing their answers after validating feedback compared to discrediting feedback ($t(245) = -5.40, p < .001$) and insulting feedback ($t(247) = -3.44, p = .002$); interest in changing answers was significantly higher after discrediting compared to insulting feedback ($t(246) = 5.26, p < .001$). However, in the feelings version, no significant differences were observed among the feedback types (p 's > 0.055).

In sum, some findings replicated Study 1. White participants and women were least interested in changing their answers, and, participants were least interested in changing answers when their knowledge was validated and most interested when their knowledge was discredited.

14. Study 3 method

Study 3 used a between-subjects procedure that was substantially more efficient and less repetitive for participants: they encountered only one round of the game, versus 30 in Studies 1–2. We aimed to replicate our findings from Studies 1–2; in particular, those concerning Black participants' affective responses to discrediting feedback and their association with race-based trauma symptoms.

14.1. Study 3 participants

Participants included 756 online participants (437 women, 265 men, 54 no answer; $M_{age} = 37.5$) recruited via Amazon Mechanical Turk. Fifty-four participants did not complete the study and were excluded from analyses, leaving 702 participants. Participants reported their racial background using six categories: Asian or Asian-American: $n = 0$; Black or African-American: $n = 350$; Multiracial: $n = 7$; Native American or Pacific Islander: $n = 1$; Other: $n = 6$; White or European-American: $n = 338$. Again, most participants reported annual income between $< \$30,000$ to $< \$59,999$.

As a result of our recruitment strategy, groups of Black and White participants were equivalently sized, as in Studies 1–2. In this study however, prioritizing our racial background goals and limitations based on response rates and funding resulted in fewer men relative to women (Black men, $n = 121$, White men, $n = 138$; Black women, $n = 229$; White women, $n = 200$). Although the number of men was actually greater in Study 3 than in Studies 1 or 2, the gender distribution was slightly more unbalanced, suggesting the earlier studies may more accurately reflect nuanced contributions of gender and interactions with race.

14.2. Study 3 procedure

The procedure for Study 3 was similar to the procedure in Studies 1–2, with the following exceptions: each participant played only a single round of the game, in either the knowledge or feelings condition, with feedback type varied between-subjects. Since reducing the number of rounds while varying feedback between-subjects decreased the power of the study, we increased the sample size slightly. Participants' knowledge and feelings responses were collected using a text box, as opposed to multiple-choice questions, as in Studies 1–2. Using a text box to collect knowledge and feelings potentially introduced noise from participants' varying comfort levels generating a novel response; however, filling in one's own response represents a more naturalistic "sharing" of knowledge/feelings. See Study 3 Measures for other changes.

14.3. Study 3 measures

Affective Responses. Differing from Studies 1–2, participants provided their affective responses to the prompt "How did the feedback you just received make you feel?" using a scale from 1 to 7 (anchors: 1 = Extremely negative, 7 = Extremely positive), as opposed to -3 to 3 (zero midpoint) as in Studies 1–2. While this change affects measurement consistency across the three studies, it was made to rule out the possibility that participants providing affective responses close to zero after discrediting feedback in Studies 1–2 interpreted zero as "negative" affect, rather than the neutral midpoint. This seems unlikely, since these same participants also rated validating feedback like most participants did, as moderately positive, suggesting scale usage was no different. In any case, selections close to the midpoint "4" after discrediting feedback in this study will support the interpretation in Studies 1–2 that participants providing responses close to zero were in fact were indicating neutral affect.

Interest in Changing Answers. Differing from Studies 1–2, participants used a scale from 1 to 7 (anchors: 1 = Not at all, 7 = Very much), as opposed to -3 to 3, to their responses to the prompt "How much would you consider changing your multiple-choice answer, based on the feedback you just received?"

Scales. Participants completed the same scales and inventories as in Studies 1–2: the Race-Based Traumatic Symptoms Scale (RBTSS: Carter et al., 2013), the Life Events Questionnaire (LEQ: Brugha & Cragg, 1990), PTSD (CAPS) inventory (Blake et al., 1995), the Justice Sensitivity Index - Victim Sensitivity subscale (JSI-V: Schmitt et al., 2010), and a short demographics questionnaire. All scales are available in full in the Supplementary material.

14.4. Study 3 results

14.4.1. Study 3 results: affective responses

We conducted an ANOVA in SPSS 29.0.0.0 with the dependent variable of participants' affect after receiving the feedback. The between-subjects factors were "Feedback" (validating, discrediting, and insult), "Gender" (men, women), "Race" (Black, White), and experiment "Version" (knowledge, feelings). Table 1 contains the means and standard errors for affective responses by feedback condition, gender, and race in Studies 1–3. Table 2 contains the results with significant effects and interactions indicated in bold, for Studies 1–3. Fig. 2 illustrates the findings for H1 and H2 for Studies 1–3. Fig. 3 illustrates the individual differences observed in Studies 1–3, relevant to H3.⁴

H1. First, replicating Studies 1–2, results supported the portion of H1 proposing that: **Affective responses to validating feedback will be more positive than responses to discrediting and insulting feedback.** There was a large size significant within-subjects effect ($\eta^2 p = .335$) of feedback (see Table 2 and Fig. 2). Pairwise comparisons using *t*-tests with Bonferroni adjustments were again conducted among validating ($M(SEM) = 4.90(0.11)$), discrediting ($M = 2.77(0.09)$), and insulting ($M = 2.53(0.09)$) feedback. This time, validating and discrediting feedback significantly differed ($t(455) = 15.23$, $p < .001$) as did validating and insulting feedback ($t(640) = -17.08$, $p < .001$); but discrediting and insulting feedback did not ($t(455) = -2.05$, $p = .123$).

H2. Second, the interaction of feedback and version again provided support for H2: **Affective responses to discrediting of knowledge will be more negative than discrediting of feelings.** As in Studies 1–2, affective responses to discrediting feedback were more negative in the knowledge compared to the feelings version ($t(224) = -3.50$, $p < .001$, see Fig. 2 for graph and means); affective responses to validating ($t(229) = 0.190$, $p = .849$) and insulting ($t(229) = 0.860$, $p = .391$) feedback did not differ between versions.

H3. Third, as in Studies 1–2, there was support for H3 which proposed that: **Participants from marginalized social groups will have increased or decreased negative affective responses to discrediting feedback compared to participants not from marginalized social groups.** There was an interaction of feedback and race. Follow-up *t*-tests with Bonferroni adjustments indicated that affective responses to discrediting were less negative for Black ($M(SEM) = 3.04(0.13)$) compared to White participants ($M = 2.52(0.11)$, $t(224) = 3.04$, $p = .008$); there were no differences for validating (Black: $M = 4.75(0.16)$, White: $M = 5.04(0.13)$, $t(229) = -1.41$, $p = .483$) or insulting feedback (Black: $M = 2.56(0.12)$, White: $M = 2.50(0.13)$, $t(229) = 0.317$, $p = 1$). Discrediting feedback was rated as more negative than validating feedback for both White ($t(221) = 14.45$, $p < .001$) and Black participants ($t(232) = 8.13$, $p < .001$); as was insulting feedback (White: ($t(226) = 13.85$, $p < .001$, and Black participants ($t(232) = 10.62$, $p < .001$); while discrediting feedback was rated as less negative than insulting feedback for Black ($t(230) = 2.69$, $p = .023$) and not White participants ($p = 1$).

Second, the 4-way interaction (feedback x gender x race x version) was significant. Follow-up *t*-tests with Bonferroni adjustments indicated that Black men again rated discrediting as more positive ($M(SEM) = 3.43(0.23)$) than White men ($M = 2.52(0.16)$, $t(90) = 3.31$, $p = .004$), White women ($M = 2.52(0.16)$, $t(100) = 3.40$, $p = .003$), but not Black women ($M = 2.82(0.15)$, $t(114) = 2.28$, $p = .073$). There were some version differences: Black men rated discrediting of feelings as less negative than Black women ($t(57) = 2.87$, $p = .017$), and White men ($t(42) = 3.92$, $p < .001$). Discrediting feedback was more negative in the

⁴ We note that the number of men was lower than the number of women (between 17 and 27 per cell for men compared to between 29 and 42 per cell for women, depending on analyses). This suggests that finer-grained conclusions about gender effects or lack of gender effects should be tentative. Nevertheless, as indicated in Table 2 and highlighted in the text, there are some consistent patterns related to gender and race across the studies.

knowledge versus feelings version for Black men ($t(40) = -2.66$, $p = .03$) and White women ($t(58) = -4.06$, $p < .001$) but not Black women ($t(72) = -1.71$, $p = .277$), or White men ($t(48) = 0.255$, $p = 1$).

Ancillary to the hypotheses, there was also a significant interaction of gender and version. White men rated validation of feelings as less positive than White women ($t(57) = -3.90$, $p < .001$).

H4. Supporting H4 for the third time, **(Race-based discrimination will predict individual differences in responses to discrediting feedback)**, higher RBTSS scores were again associated with less negative affect (higher affect ratings) after discrediting and insulting feedback, for Black men (see Table 3 for correlations). RBTSS scores were also negatively correlated with affect ratings after discrediting feedback for Black women and positively correlated with affect after validating feedback ratings for White women this time. Additional correlations appearing for first time were positive correlations between White women's affect after validating and insulting feedback and post-traumatic symptoms.

14.5. Study 3: comparative summary for affective responses

Study 3 incorporated a number of procedural changes: we varied feedback (validating, discrediting, insulting) between-subjects, rather than within-subjects as in Studies 1–2, and we reduced the length of the study from 30 (Studies 1–2) to a single round. Also, participants used a text box to share their knowledge or feelings, rather than a multiple-choice question, and provided their affective responses with a 1–7 scale, rather than a – 3 to 3 scale, as in Studies 1–2.

Several important findings replicated. First, validating feedback was again more positive than discrediting and insulting feedback. Second, discrediting in the knowledge version was again rated more negative than discrediting in the feelings version. Third, Black participants rated discrediting feedback as less negative than White participants. Suggesting that the change in the 1–7 scale did not alter scale usage, we continued to see Black men rate discrediting feedback closest to the midpoint, relative to the other groups (Black women, White participants).

In addition, White men rated validating feedback in the feelings version more negatively compared to White women; in Study 1, White men had rated validating feedback more negatively than White women in both versions, and in Study 2, men had rated validating feedback more negatively than women, generally. Finally, Study 3 replicated for the second time the positive correlations between RBTSS scores and Black men's affect after discrediting and insulting feedback, and the positive correlation between Black men's post-traumatic symptom frequency and affect after discrediting feedback. In sum, the changes we made to the procedure in Study 3 appear to have left intact several robust effects and patterns in the results, discussed in detail in the General Discussion.

14.5.1. Study 3 results: interest in changing answers

We conducted an ANOVA with the dependent variable of participants' interest in changing their answers after receiving the feedback. The between-subjects factors were "Feedback" (validating, discrediting, and insult), "Gender" (men, women), "Race" (Black, White), and experiment "Version" (knowledge, feelings). Table 4 contains the means and standard errors by feedback condition, gender, and race in Studies 1–3. Table 5 contains the results with significant effects and interactions indicated in bold, for Studies 1–3.

As in Studies 1–2, there was a significant main effect of gender, indicating interest in changing answers was once again higher for men ($M(SEM) = 2.51(0.11)$) than women ($M = 2.09(0.09)$), and a significant main effect of race, indicating interest in changing answers was higher for Black participants ($M = 2.52(0.10)$) compared to White participants ($M = 2.08(0.10)$).

As in Studies 1–2, there was a significant effect of feedback. Participants were again least likely to be interested in changing their answers

after validating feedback ($M = 2.02(0.11)$), compared to discrediting $M = 2.39(0.13)$ or insulting feedback $M = 2.28(0.12)$. Bonferroni-corrected t -tests indicated these differences were not significant (validating vs discrediting, $t(463) = -2.19, p = .087$; discrediting vs insulting, $t(466) = 0.604, p = 1$; validating vs insulting, $t(469) = -1.64, p = .303$). However, as in Studies 1–2, the feedback effect was qualified by an interaction with version which indicated, once again, that discrediting increased interest in changing answers in the knowledge version exclusively (validating vs discrediting, $t(224) = -3.40, p = .002$). There were no other significant differences across the feedback types in either version. Finally, there was an interaction of feedback, gender and race; Bonferroni-corrected t -tests indicated higher interest in changing answers after discrediting feedback for Black men relative to White men ($t(90) = 3.74, p < .001$), and relative to Black women ($t(114) = 3.28, p = .004$) and White women ($t(100) = 3.71, p = .001$).

In sum, across Studies 1–3, White participants relative to Black participants, and women relative to men, were less interested in changing their answers, on average. Other consistent individual differences included increased levels reported by Black men after discrediting feedback. On average, discrediting of knowledge most increased, and validation most decreased, participants' interest in changing their answers. Across Studies 1–3, feedback consistently affected interest in changing answers in the knowledge, not feelings, version of the experiment.

15. General discussion

The present research investigated the extent to which a key aspect of epistemic injustice—the baseless discrediting of a person's knowledge—explains the emotional impact of discrimination. The following findings emerged consistently across the three studies and supported our four main hypotheses.

H1. Affective responses to validating feedback will be more positive than responses to discrediting and insulting feedback; discrediting and insulting feedback may not differ. In all studies (see Fig. 2), supporting H1, affective responses to validating feedback were significantly more positive than to discrediting and insulting feedback. Discrediting feedback was rated significantly less negative than insulting feedback in Studies 1–2 where feedback was a within-subjects variable, while discrediting and insulting feedback were not significantly different, on average, in Study 3, where feedback was varied between-subjects. Discrediting feedback may have received more negative affective responses in Study 3 because insults were not available to participants for comparison.

H2. Affective responses to discrediting of knowledge will be more negative than discrediting of feelings. In all studies, affective responses to discrediting feedback were more negative in the version in which participants shared their knowledge, compared to the version in which participants shared their feelings, supporting H2 (see Fig. 2). This difference was expected on the understanding of knowledge as more closely related than feelings to self-perceived competence, a critical component of identity and self-esteem (Liang et al., 2021; Tafarodi & Swann Jr, 1995). The finding suggests, as well, that emotional responses to epistemic injustice might be more intense or burdensome when shared knowledge of the facts is required, for example, in educational, medical, and legal contexts.

H3. Individual differences in affective responses to discrediting feedback (increased or decreased negative affect) based on marginalized group membership will be observed. In all studies, affective responses to discrediting feedback differed based on marginalized group membership. As illustrated in Fig. 3, Black men reported less negative affect after receiving discrediting feedback compared to the other examined groups: White men, and Black and White women. This difference was most prominent in Study 1. By contrast, Black and White women's affective responses to discrediting feedback were similar across the studies. While not hypothesized, individual differences in affective responses to validation also replicated; White men responded with less positive affect to

validating feedback compared to women. We discuss the findings related to H3 in the next two sections of this discussion.

H4. Race-based discrimination will predict individual differences in responses to discrediting feedback. In all studies, race-based trauma symptoms scale scores (RBTSS scores; indexing coping related to experiences with discrimination) and post-traumatic symptom frequency positively correlated with affective responses after discrediting feedback for Black men (see correlations in Table 3); RBTSS scores also consistently predicted Black men's affective responses to insulting feedback. No other correlations replicated across all three studies. Additional correlations among measures including justice sensitivity and traumatic symptom intensity and the other tested groups were smaller and unreliable. We discuss the findings related to H4 in more detail in the next section of this discussion.

Collectively, these results provide empirical support for the emotional impact of a theorized cornerstone of epistemic injustice (e.g., Fricker, 2007): identity-based discrediting of a person's knowledge. We next examine potential explanations for these findings, discuss the limitations of this work, and identify several open questions for future research.

15.1. Discrimination and baseless discrediting of knowledge

We expected affective responses to discrediting feedback to differ based on marginalized group membership, but the direction those differences would take was unclear, given mixed findings related to gender differences in coping styles (e.g., Eaton & Bradley, 2008; Graves et al., 2021; James et al., 1983; Woods-Giscombé, 2010). Ultimately, a pattern emerged across the three studies in which Black men reported less negative affect after receiving discrediting feedback compared to the other tested groups. Considering that being subject to baseless discrediting was apparently emotionally negative for most participants, what explains this finding?

The finding is consistent with both common conceptualizations of coping mechanisms for chronic stress and more specific accounts of race-based trauma and coping. Reduced emotionality in response to discrediting and insult could be characterized as consistent with other psychological coping mechanisms for chronic stress such as numbing, emotional avoidance, dissociation, and cognitive reappraisal (e.g., Carter et al., 2013; Kalisch et al., 2015; Yehuda et al., 2015). For instance, resilience to inescapable, chronic stressors is proposed to involve positive or neutral appraisals of aversive stimuli (Kalisch et al., 2015). In the context of this research paradigm, Black men's neutral, or less negative, affective responses to discrediting remarks might have reflected resilience to discrediting encountered via everyday racial discrimination. Supporting this possibility, Black men, compared to women, have been found to experience more racial discrimination in public settings including employment, educational, legal, and police-related settings, where credibility is maximally important and potentially undermined by negative emotionality (Brownlow et al., 2019; Krieger & Sidney, 1996).

Furthermore, experimental findings by Goff, Jackson, Di Leone, Culotta, and DiTomasso (2014) showed that Black boys are perceived as less innocent than child peers of other races — these perceptions were associated with dehumanization of Black men and perceptions of Black boys as more appropriate targets for police violence. Expression of negative emotion may therefore increase not only threats to Black men's credibility, but also threats to safety. Neutral or positive appraisal or emotional avoidance may be reinforced to enable survival and coping with racial discrimination. Indeed, coping in response to racial discrimination has been found to be situationally adaptive; reduced affect (e.g., avoidance or downregulation of emotion) may develop as a protective coping response when expression of emotions is *unsafe* (Carter et al., 2013; Carter & Forsyth, 2010; James et al., 1983; Kirkinis, Pieterse, Martin, Agiliga, & Brownell, 2021; Woods-Giscombé, 2010; Yehuda et al., 2015).

The twice-replicated significant correlations between Black men's experiences of race-based discrimination and affective responses to discrediting feedback provide additional support for the possibility that systemic racism experienced by Black men contributed to the observed emotional response patterns. The only other correlation that replicated across the three studies was between Black men's affective responses to discrediting and their post-traumatic symptom frequency, as measured with a general trauma symptom inventory; it is possible that this correlation also reflects Black men's experiences with discrimination, as other research indicates that racial discrimination is a risk factor for traumatic symptoms and PTSD (e.g., Kirkinis et al., 2021). Indeed, some work suggests that racial discrimination has particularly injurious effects on mental health for Black men, over the long term (Assari, Moazen-Zadeh, Caldwell, & Zimmerman, 2017), and adherence to traditional masculine sex role norms that restrict emotionality might drive the link between experience of racism and mental health outcomes (Hammond, Banks, & Mattis, 2006).

While White men's affective responses to discrediting feedback were consistently the most negative, the affective responses to discrediting feedback were statistically equivalent for Black and White women, across all three studies. This suggests that current and historic patterns of gender-based discrimination in educational settings united affective responses to feedback for women more than Black and White women's unambiguously divergent experiences related to racial discrimination might have divided responses (see significant differences in experiences of racial discrimination in the Supplementary materials, section "4. Individual differences measures, gender, and race (Results, Studies 1-3)").

15.2. Individual differences in responses to validating feedback

While not hypothesized, affective responses to *validating* feedback also showed individual differences. Most consistently, White men responded with less positive affect to validating feedback compared to women. It is possible these differences reflect the different experiences people have with affirmation more generally. Some work suggests that validation has a greater positive impact for members of marginalized social groups: affirming interventions have been found to bolster Black students' sense of belonging and academic performance but not White students' (Cook, Purdie-Vaughns, Garcia, & Cohen, 2012; Ferguson, 2003). Likewise, validating interventions have been found to reduce academic gender gaps by raising women's performance (Martens, Johns, Greenberg, & Schimel, 2006; Miyake et al., 2010). The effects of the validating remarks may have been potentiated for women, or, the effects of the validating remarks may have been diluted by greater everyday exposure to validation for White men, or, both may have occurred.

Alternatively, the cognitive mechanism described in the previous section as potentially underlying Black men's less negative responses to discrediting feedback — adaptive appraisals (Kalisch et al., 2015) — could also help explain White men's relatively neutral affective responses to validating feedback. Because the performance enhancements Black and women students gain from validation are *relative* to White students, and men, who do not show these gains (Cook et al., 2012; Ferguson, 2003; Martens et al., 2006; Miyake et al., 2010), this suggests that validation provides positive release from self-doubt for Black and women students, while White men students may not experience validation in the same way. The secondary variable we measured, interest in changing one's answers, is relevant here. If people generally respond with positive affect to validation because they believe it has real utility, they should be reassured about their answers when they receive validating feedback conveying that they are *right*. In fact, across all three studies, validating feedback, rated most emotionally-positive on average, was the condition least likely to cause participants to be interested in changing their answers, indicating that participants were generally reassured in their answers by the validating feedback. Consistent with the findings showing benefits of validation for women's performance (Martens et al., 2006; Miyake et al., 2010), women were

especially unlikely to be interested in changing their answers after validating feedback in Study 1.

By contrast, for individuals uninterested in receiving feedback, validating feedback communicating that they are "right" and discrediting feedback communicating that they are "wrong" may be valueless or delegitimized. Consistent with findings showing validation interventions increased Black, but not White, students' performance (Cook et al., 2012; Ferguson, 2003), across our three studies, Black participants were significantly more interested in opportunities to change their answers after feedback than White participants. Furthermore, while discrediting feedback was generally most likely to cause participants to be interested in changing their answers, the highest levels of interest in changing answers were reported by Black men after discrediting of their knowledge. As discussed in the previous section, Black men's affective responses to discrediting of their knowledge stood out for being consistently less negative, as well. Together, the findings suggest that, in the U.S., gender and race moderate the extent to which feedback is interpreted as valuable, an outcome traceable in self-reported emotion and openness to changing one's mind. Future research might explore how people's cognitive and affective appraisals of validating and discrediting feedback predict the effectiveness of these types of feedback, and how appraisals and feedback effectiveness are linked to marginalized social identities.

15.3. Limitations and future directions

Participants' Experiences and Reflections. First, it is a limitation of this work that we did not have measures of participants' experiences related to their interest level and reflections about their affective states. It is possible that ranging responses to discrediting feedback reflected a variability in participants' interest levels; perhaps some participants exhibited a lack of interest, rather than an emotional coping mechanism. This seems unlikely, since there is no clear reason why being discredited would be less interesting than being validated or mildly insulted. Furthermore, while disinterest might explain neutral affect after receiving discrediting feedback, it is an unlikely cause of a desire to change one's answers, which was also increased for Black men after receiving discrediting feedback. Nevertheless, to clarify the relationship between the affective experience of discrediting and exposure to epistemic injustice, future behavioral research might collect participants' reflections about their affective responses. Adding this aspect to a paradigm could also shed light on the above explanations put forth related to adaptive appraisals (Kalisch et al., 2015); participants' reflections could help us better understand the extent to which ratings indicating neutral affect reflect cognitive appraisals of the feedback as non-threatening.

Second, it is a limitation of this work that we did not have more specific measures of participants' perceptions and expectations about receiving feedback, both in the game and in real life. A useful measure, for instance, would gauge participants' estimates of the likelihood of the different kinds of feedback. It could be that being validated is considered broadly more likely than being discredited or mildly insulted, affecting our understanding of those ratings. It is also unknown which social identities, if any, participants imputed onto the anonymous partners who doled out the feedback. If participants straightforwardly perceived a particular gender, race, role, or institutional context, this might suggest that affective responses to these simple stimuli are linked to participants' prior affective responses to systematic discrimination in a particular context, as proposed in the prior section "Discrimination and baseless discrediting of knowledge." Finally, their differentiated responses to insulting, discrediting, and validating feedback suggest they were engaged with the game as if it was real, but we did not inquire about participants' real life everyday experiences of being undermined intellectually. Future study of participants' beliefs and expectations about the kinds of feedback they typically receive and the social identities and motivations of typical feedback-givers in their lives would help

elucidate the sources of the observed variability in affective responses to discrediting feedback.

Measurement of Emotion. We limited our study of emotion to explicit momentary ratings of positive or negative affective valence to align with models of resilience based on neurobiology that describe resilience to chronic stressors as a process in which aversive stimuli are appraised in a positive or neutral manner (Kalisch et al., 2015). Our self-report affect measure recorded participants' immediate responses to each instance of feedback, allowing us to aggregate affective responses and compare across the feedback types. Although explicit momentary affect ratings were appropriate to investigate how people emotionally experienced our experiment, they are not sufficient. While a multi-item affect scale would have been cumbersome in the design of the present studies, measurement of anger, disappointment, and moral emotions like moral outrage, shame, and guilt, might bring additional dimensions to our understanding of participants' experiences. The effects of discrediting on specific emotions could have different implications for well-being.

Additionally, given the fundamental limitations of self-report, it will be informative to measure affect implicitly in future work. Physiological and neural measures of emotion could help illuminate the extent to which explicit affect ratings reflect experienced affect in this context. For example, measurement of eyeblink startle magnitude would be an instructive index of emotional valence (Lang, Bradley, & Cuthbert, 1990; Vrana, Spence, & Lang, 1988); this method involves administering white noise bursts to participants during the different conditions of an experiment (e.g., validating, discrediting, and insulting feedback) and measuring participants' startle responses via electrodes positioned on the face — greater magnitude eyeblinks in a condition are indicative of greater emotional arousal in that condition. Having data on participants' physiological emotional arousal could help clarify whether neutral responses to discrediting are an artifact of self-report or actually reflect a stable emotion management strategy.

Online vs. In-Person Research. While one of the major advantages of online participant pools like Amazon Mechanical Turk (mTurk) is that researchers can quickly reach a more socioeconomically and ethnically diverse population than can be reached through student research pools (Horton, Rand, & Zeckhauser, 2011; Stewart, Chandler, & Paolacci, 2017), participants recruited online are less racially and ethnically diverse (and more politically liberal, less religious, and more educated) than the average American (e.g., Berinsky, Huber, & Lenz, 2012). In particular, Black participants are typically undersampled in online research (Brownlow et al., 2019). The lack of racial diversity in online research environments was a serious concern for this project since we focused on epistemic injustice affecting Black men and women. However, online studies offer many recruiting advantages over in-person studies as well: people may take online studies from their own homes, saving them money and time; people who are differently abled can more easily access studies; and people who are uncomfortable in lab settings or interacting face-to-face with researchers may be more comfortable participating. To overcome the online sampling bias and recruit sufficient Black participants, we supplemented our recruiting with advertisements throughout the community where this research was carried out, a diverse city with a significant African-American cultural heritage.

While we intentionally created an online experiment involving an anonymous, neutral game situation to reduce noise from extraneous confounds (e.g., personal knowledgebases; assumptions about game partners), the study of epistemic injustice will benefit from future research that recruits participants for in-person experiments. Such studies could investigate how race and gender interact to influence emotional responses to discrediting feedback by pursuing the future directions outlined in the subsections above, “*Participants' Experiences and Reflections*” and “*Measurement of Emotion*.”

Limitations to Generalization. The patterns we observed here are robust among our three samples of Black and White U.S. participants, and therefore informative to our understanding of microaggressions and epistemic injustice targeting Black individuals in the U.S. However,

these results cannot be generalized to all geographic regions and marginalized groups. Future work carried out cross-culturally will better inform a holistic understanding of epistemic injustice. It is likely that variability in emotional responses to being questioned in one's knowledge is present in other locations with histories of racial and ethnic discrimination, and in other historically marginalized groups.

15.4. Implications

The present findings contribute to cumulative theoretical knowledge in psychology and provide empirical support for the philosophical construct of epistemic injustice (e.g., Fricker, 2007). They show that emotional responses to being undermined in one's credibility as a knower are, indeed, connected to experience with prejudice and discrimination. Psychological science has the potential to shed much more light on the processes by which ascribing credibility to the contents of others' minds produces prejudice and discrimination in many forms. To do so, it will be important to take care with recruiting strategies to reach populations that have been historically excluded from central areas in psychology due to discrimination and prejudice, including perceptual, affective, and cognitive science.

These results also have implications for recent theory and commentary on social injustice and victimization (e.g., Case, 2019; Haslam, 2016; Lukianoff & Haidt, 2015) that propose that emotional responses to microaggressions reflect increased sensitivity in those most targeted. Instead, those who most frequently experienced race-based trauma, Black men and women (West, 2019), demonstrated distinct affective responses to being discredited, perhaps related to their distinctive experiences with racial discrimination (Krieger & Sidney, 1996). We were able to observe these differing affective responses because we adopted an approach focused on the emotional experienter, rather than the agent, of epistemic injustice, in line with harm-based accounts of microaggressions (Freeman & Stewart, 2021), which focus on the person's *experience* of being harmed, even in the absence of evidently intentionally inflicted wrongdoing.

16. Conclusion

This research investigated how people emotionally respond to being discredited (i.e., being told they are wrong), rather than validated (i.e., being told they are right), and how their emotional responses are related to their experiences with racial discrimination. In three studies with different samples of Black and White men and women in the US, Black men demonstrated significantly reduced negative affect in response to discrediting feedback, and their affective responses were predicted by race-based traumatic symptom scale scores indicative of experiences with racial discrimination – findings that replicated twice. The results are representative of the intertwined nature of emotion, epistemic authority, social identity, and injustice. We anticipate that future empirical research on epistemic injustice will both enhance our practical understanding of the psychological impact of feedback and illuminate new ways of identifying and protecting against subtle forms of discrimination.

CRedit authorship contribution statement

Laura Niemi: Writing – review & editing, Writing – original draft, Visualization, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Natalia Washington:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Conceptualization. **Cliff Workman:** Writing – review & editing, Writing – original draft, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Migdalia Arcila-Valenzuela:** Writing – review & editing, Writing – original draft. **Felipe De Brigard:** Writing – review & editing, Writing – original draft, Supervision, Project administration,

Methodology, Investigation, Conceptualization.

Declaration of competing interest

The authors report there are no competing interests to declare.

Data availability

The data for all studies are available online at: <https://osf.io/3us8g/>.

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Appendix A. Supplementary data

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