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Factors that contribute to accurately perceiving anti-black racism and sexism overlap

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ABSTRACT

Past research demonstrates that prejudice toward women and Black Americans often co-occur in individuals. The present studies examine factors related to accuracy in estimating the co-occurrence, or overlap, of prejudice toward women and Black Americans. Across two studies, criterion overlap percentages were computed using national datasets and separate participant samples estimated prejudice overlap. Results indicate that beliefs about the generalized nature of prejudice can improve accuracy by reducing faulty underestimation of the overlap in anti-Black racism and sexism. In addition to greater displayed accuracy in perceptions of prototypical perpetrators of prejudice (i.e., estimates of White men compared to White women), the present work suggests that accuracy is improved when estimating sexist attitudes from racist attitudes, rather than vice versa. Together, this work documents the accuracy of prejudice overlap perceptions, for the first time, and factors that facilitate accuracy (i.e., perpetrator prototypicality, known prejudicial attitude), with implications for intergroup dynamics research.

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One of the facts of which we are most certain is that people who reject one out-group will tend to reject other out-groups. If a person is anti-Jewish, he is likely to be anti any out-group. (Allport, 1954, pg. 68)

Allport's (1954) early claim of certainty about the co-occurring nature of prejudice has since been supported by a large body of literature on generalized prejudice which highlights the frequent co-occurrence of prejudice along certain dimensions (e.g., Akrami et al., 2011; Crawford & Brandt, 2019; Duckitt & Sibley, 2007; McFarland, 2010). Moreover, research has demonstrated that lay individuals vary in the extent to which they believe that prejudices co-occur within an individual (see Sanchez et al., 2018). While lay theories of prejudice impact when individuals anticipate prejudice from others (e.g., Sanchez et al., 2018; Sommers & Norton, 2006), and can serve as self-protective mechanisms reducing the perceived likelihood of experiencing discrimination (e.g., Major et al., 2002), research has yet to explore if endorsing a Lay Theory of Generalized Prejudice (LTGP) is accurate or functional. For instance, if an individual believes that a White man is likely to harbor sexist attitudes because of an espoused anti-Black attitude, is this expectation of co-occurring prejudice accurate?

Lay theories of prejudice

Lay theories refer to non-experts' beliefs about the nature of a phenomenon (Anderson & Lindsay, 1998). Oftentimes, lay theories are endorsed as a way of controlling and understanding one's social environment (Plaks et al., 2005) and guide social interactions (Fletcher, 1995; Heider, 1958; Wegener & Petty, 1998). A large portion of the literature on lay theories focuses on lay theories which promote

stereotyping and discrimination (see Jost & Major, 2001; Sidanius & Pratto, 2001). Lay theories which justify prejudice (e.g., Eidelman & Crandall, 2012; Jost & Banaji, 1994) have been critical in developing an understanding of the perpetration of bias and resistance to social change but do less in documenting when lay individuals perceive prejudice in their social context.

Research on lay beliefs about the nature of prejudice has asked questions such as, “What are the origins of prejudice and discrimination?” (e.g., Apfelbaum et al., 2017; Hodson & Esses, 2005), “How can racist people be identified?” (e.g., Sommers & Norton, 2006), and “is prejudice something that can change?” (e.g., Carr et al., 2012). These studies have implications for understanding why non-experts believe prejudice is inevitable (Hodson & Esses, 2005), their willingness to engage in intergroup interactions (Carr et al., 2012; Levy et al., 2006; Williams & Eberhardt, 2008), and willingness to confront prejudiced behavior (Chaney & Wedell, 2022; Rattan & Dweck, 2010).

While documenting the presence of lay theories about prejudice gives insight into how people navigate intergroup interactions (Hong et al., 2001), understanding lay theories’ relative accuracy (i.e., to what extent these lay theories are rooted in truth) can highlight how lay theories may detrimentally affect behavior and health. For example, physiological stress from interacting with a prejudiced conversational partner was dependent on whether participants expected prejudice in their daily lives (Townsend et al., 2010). Moreover, past research suggests that the perceptions of prejudice are associated with avoidance of certain contexts and outgroup members (Boucher & Murphy, 2017; Diekmann et al., 2002; Shelton & Richeson, 2005), decreased working memory (e.g., Beilock et al., 2007), poorer well-being (e.g., Hunger et al., 2015), and greater anxiety and physiological arousal when interacting with outgroup members (Finchilescu, 2010; Sawyer et al., 2012). Despite scientific discussions of the outcomes associated with having high or low expectations of prejudice (e.g., Major et al., 2002; Yzerbyt et al., 2009), little research has examined the accuracy of lay beliefs about the prevalence of prejudice. As such, the present work seeks to demonstrate if lay theories of prejudice aid in creating more accurate estimations of the overlap of prejudice or, in other words, the extent to which the prejudices co-occur in society.

Lay theory of generalized prejudice

Research on generalized prejudice highlights individuals who are prejudiced toward one marginalized social group are often prejudiced toward other marginalized social groups (Akrami et al., 2011; Crawford & Brandt, 2019; Duckitt & Sibley, 2007; McFarland, 2010). This study of generalized prejudice accounts for distinctions between modern prejudice (e.g., resentments toward equity demands) and old-fashioned prejudice (McConahay, 1986), but suggests that these different forms of prejudice are highly correlated (e.g., Pettigrew & Meertens, 1995; Swim et al., 1995), and load onto the same latent construct of generalized prejudice (Bäckström & Björklund, 2007). As such, despite variability in the relationship between different forms of prejudice (e.g., prejudices toward low vs high-status groups; Crawford & Brandt, 2019; Duckitt & Sibley, 2007), it is proposed that prejudices toward derogated social groups, including women and Black Americans, often co-occur due to underlying ideologies which favor inequality (Levin et al., 2016).

Research has begun to explore the extent to which lay individuals believe that prejudices co-occur within an individual (i.e., endorsement of LTGP (Chaney et al., 2021a; Chaney & Sanchez, *in press*; Sanchez et al., 2018)). Research on LTGP has demonstrated that individuals are aware of the generalized nature of prejudices, such that they generally infer that someone who is sexist is also racist, and vice-versa (e.g., Chaney et al., 2016, 2019; Sanchez et al., 2018, 2018). For example, Black and Latino participants anticipated experiencing racial discrimination from a White male perpetrator who endorsed sexist attitudes and White women anticipated experiencing gender discrimination from a White male perpetrator who endorsed anti-Black attitudes (Chaney et al., 2021a; Chaney et al., 2021b; Sanchez et al., 2017). These demonstrations suggest that LTGP facilitates expectations of identity threat from prejudice directed at varied marginalized outgroups.

Yet, some individuals endorse LTGP more strongly than others, with important consequences. For example, only White women who strongly endorsed LTGP demonstrated cardiovascular reactivity when preparing for an evaluation by a racist White man compared to a White man whose intergroup attitudes were unknown (Chaney et al., 2021a). Similarly, Asian Americans who strongly endorsed LTGP, relative to low endorsers, anticipated being perceived as less American by a White man who endorsed negative attitudes toward Latino Americans (Sanchez et al., 2018). Together, these findings suggest variability in LTGP endorsement that can have meaningful consequences for individuals, including anticipated discrimination and cardiovascular stress. Thus, while past research suggests that endorsing LTGP may be functional given the vast literature on the co-occurrence of prejudice (e.g., Duckitt & Sibley, 2007), the accuracy of LTGP has yet to be examined.

Accuracy of prejudice estimates

Accuracy research seeks to document if people's perceptions of themselves (e.g., Funder, 1980), others (e.g., Gage & Cronbach, 1955; Kenny, 1981), and society (e.g., Kraus et al., 2019) are accurate. To date, this research has grown from questions about accuracy in personality (e.g., how agreeable is a target person) and accuracy in interpersonal interactions (e.g., does your conversation partner trust you; see Hall et al., 2009) to the accuracy of social stereotypes (e.g., intelligence differences; Judd & Downing, 1995; Judd & Park, 1993; Ryan, 1996) and recollections of historical and structural racism (e.g., Bonam et al., 2019). Stereotype accuracy studies often compare the beliefs of one sample (e.g., women's estimates of how many men support policies that benefit women) to a criterion sample's true score on such measure (i.e., what percentage of men support such policies; Diekmann et al., 2002). From these two samples (the criterion samples' true attitude and the estimator's perceptions of the criterion samples' attitudes), difference scores are computed to assess the estimator's accuracy.

Notably, the only research to our knowledge that has studied the accuracy of perceptions of contextual prejudice examined perceptions of hostile sexism (e.g., "women should stay in their place") and benevolent sexism (e.g., "women should be cherished and protected") among undergraduate students (Rudman & Fetterolf, 2014). This research documented undergraduate men underestimated the sexist attitudes of women at their university, while women overestimated men's sexist attitudes (Rudman & Fetterolf, 2014), pointing to the influence of perpetrator prototypicality (i.e., to what extent the target matches the prototypical perpetrator of this prejudice) on accuracy. Thus, little research has examined if perceptions of group-level prejudicial attitudes overlap are accurate and no work to date has considered how lay theories of prejudice may impact accuracy.

Current research

Past research demonstrates that LTGP endorsement can influence when individuals anticipate discrimination from a perpetrator who endorses prejudice toward another marginalized outgroup, including impacting cardiovascular reactivity and perceived belonging (Chaney et al., 2021a; Sanchez et al., 2018). Despite these consequences of endorsing LTGP, research has yet to demonstrate the accuracy of such a lay theory. Across two studies, we employed national (ANES, 2016 American National Election Survey; Study 2: 2018 General Social Survey) datasets to establish criterion measures of the percentage of White men and women who endorsed both sexist and anti-Black racist beliefs. In unique samples of estimators, we measured the accuracy of prejudice overlap estimates and assessed the relationship between estimators' LTGP endorsement and prejudice overlap accuracy. Following past research on LTGP that has primarily focused on the overlap between prejudice toward Black Americans and women (e.g., Chaney et al., 2016, Chaney et al., 2021a; Sanchez et al., 2017), the present research explores the accuracy of participants' estimates of the co-occurrence of prejudice toward Black Americans and women.

Additionally, we examine several factors that may facilitate or impede the accuracy of prejudice overlap estimates. First, we explore how the accuracy of prejudice overlap estimates may be impacted

by the known prejudice cue. Specifically, we manipulate whether participants estimate the percentage of people who endorse anti-Black attitudes that *also* endorse sexist attitudes or estimate the percentage of people who endorse sexist attitudes that *also* endorse anti-Black attitudes. As such, we examine if prejudice toward Black Americans is better estimated among groups of individuals whose sexist beliefs are known or if sexism is better estimated for groups whose anti-Black racism is known. In other words, upon learning about a group's endorsement of racism are participants better estimators of how likely they are to endorse sexist statements or vice versa? We hypothesized that as racist statements are more likely to be attributed to prejudice relative to sexist statements (e.g., Woodzicka et al., 2015), there may be greater overlap accuracy from racism (i.e., racist attitudes known) relative to sexism (i.e., sexist attitudes known). Specifically, because it may be seen as more egregious or against social norms to endorse anti-Black attitudes than sexist attitudes (Cowan & Hodge, 1996; Czopp & Monteith, 2003; Woodzicka et al., 2015), we expected that people may be more accurate at estimating from a known anti-Black cue than a known sexist cue.

Finally, we examined the effect of criterion and estimator identities on accuracy estimates. As White Americans are prototypical perpetrators of racial prejudice and men are prototypical perpetrators of sexism (Inman & Baron, 1996; Inman et al., 1998), the present research examined the accuracy of estimating prejudice overlap of White men and women in the U.S. Past work demonstrates that men generally have higher levels of generalized prejudice than women (e.g., McFarland, 2010). To examine this question, we calculated prejudice overlap for White women and White men, and estimator participants estimated prejudice overlap for either White men or women with a between-subjects experimental design.¹ We hypothesized that participants would be more accurate in estimating the prejudice overlap of White men as they are prototypical perpetrators of anti-Black racism and sexism. Further, our estimators varied across studies, White men and women (Study 1), Black and Latinx men and women (Study 2). Such diverse samples of estimators allowed for a broader assessment of prejudice overlap accuracy.

Study 1

Study 1 utilized an existing dataset of prejudiced attitudes in the U.S.: the American National Election Survey (ANES, 2016). We calculated the overlap of prejudice toward women and Black Americans reported by White men and women. Then, we recruited a sample of White men and women from Amazon's Mechanical Turk (MTurk) to estimate anti-Black and sexist prejudice overlap among White American men and women. We anticipated estimates of sexist and anti-Black racism overlap to be higher for White men targets compared to White women targets as White women are not prototypical perpetrators of sexism. In recruiting both White men and women participants, we explored differences in overlap accuracy by participant gender. Additionally, we examined the factor of known prejudiced attitude. That is, we calculated the percentage of White men and women who endorsed anti-Black attitudes that also endorsed sexist attitudes, as well as the percentage who endorsed sexist attitudes that also endorsed anti-Black attitudes (calculation and importance of this factor are described in detail below). Participants in the estimator sample then estimated either prejudice overlap from anti-Black attitudes or prejudice overlap from sexist attitudes (i.e., a between-subjects factor). We anticipated more accurate estimates in the known racism condition when compared to the known sexism condition.

Method and measures

Creating criterion target group scores

Data of U.S. non-Hispanic White men and women from the ANES (ANES, 2016) was utilized to create criterion measures of prejudice overlap. We selected prejudice items from the ANES toward women and Black Americans that best mirrored each other. The two ANES items assessing prejudice toward

Table 1. Criterion samples' endorsement of prejudiced statements (%).

	Study 1 ANES %		Study 2 GSS %	
	White Men	White Women	White Men	White Women
Anti-Black Prejudice Statements				
View Black Lives Matter (BLM) unfavorably	57.60	44.10	-	-
Believe "Blacks" should not get special favors	59.30	60.10	-	-
Oppose preferential hiring of "Blacks"	-	-	81.07	82.18
Sexism Statements				
View Feminists unfavorably	33.90	27.50	-	-
Believe women are seeking special favors	76.20	64.40	-	-
Oppose preferential hiring of women	-	-	73.37	69.82

These values indicate the percentage of the criterion samples that endorsed each prejudiced belief across Studies 1–2.

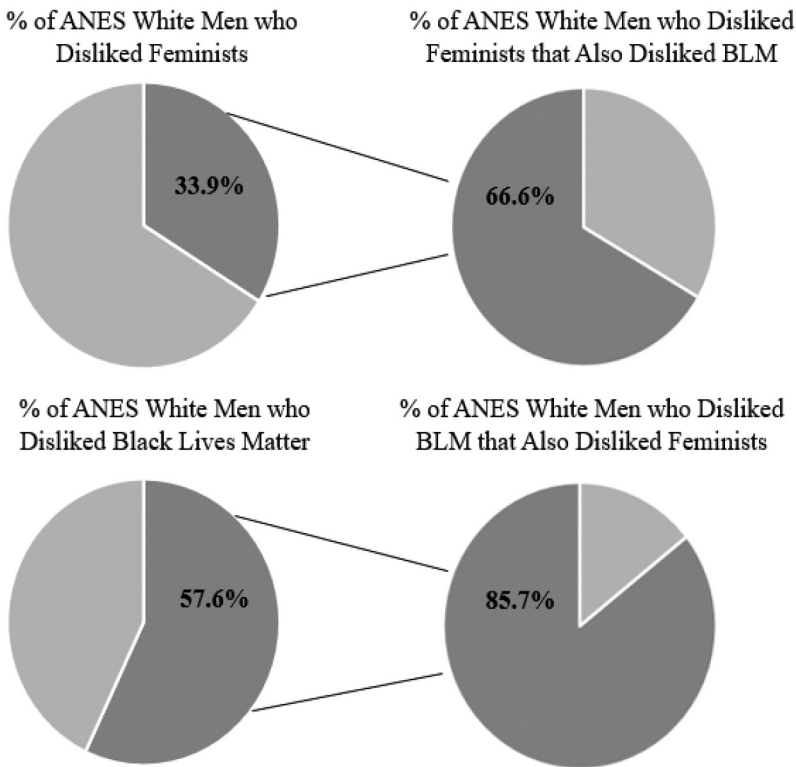


Figure 1. Visual representation of known prejudice factor and its influence on criterion overlap. Of the 33.9% of White men sampled who disliked feminists (in the criterion sample), 66.6% also disliked Black Lives Matter. The participants' aim was to estimate the likelihood that the White men/women harbored a specific attitude given the presence of another attitude, and not simply the % of the overall group that had both attitudes at once.

women were: “Women demanding equality are seeking special favors” measured on a Likert scale from 1 (*Strongly disagree*) – 7 (*Strongly agree*) and attitude toward feminists on a feeling thermometer 1 (*Very cold*) – 100 (*Very warm*). The two items assessing anti-Black racism were: “Blacks should work their way up without special favors” on a Likert scale from 1 (*Strongly disagree*) – 7 (*Strongly agree*) and attitude toward Black Lives Matter (BLM) on a feeling thermometer 1 (*Very cold*) – 100 (*Very warm*). The² number of White men and women in the U.S. ($M_{age} = 50.92, SD = 17.56$) that answered these items varied by item but ranged from 2,529–2,565.

Table 2. Study 1 overlap endorsement, estimates, and accuracy by target group and known attitude.

	Criterion Sample (ANES) Overlap Endorsement %			Participants' Overlap Estimate						Overlap Accuracy Discrepancy (±) %			
	White Men	White Women	Total	White Men		White Women		Total	White Men		White Women		Total
				M	SD	M	SD		M	SD	M	SD	
Race Attitude Known	66.95	62.25	64.60	66.69	19.50	50.33	20.82	58.51	-0.07 ^a	19.68	-12.05	20.66	-6.06^b
Gender Attitude Known	74.20	73.80	74.00	63.83	23.24	60.50	25.97	62.17	-10.37	23.24	-13.31	25.97	-11.84
Overall	70.58	68.03	69.36	65.26	21.37	55.42	23.39	60.34	-5.22 ^b	21.46	-12.68	23.32	-8.95^b

Superscripts a = highly accurate, b = near accurate range. Totaled columns represent average endorsement, estimates, and accuracy without criterion target gender (i.e., White women or White men in the U.S.) as a factor and the overall row demonstrates average endorsement, estimates, and overlap without known prejudice order as a factor for an overall picture of accuracy components.

We dichotomized responses to ascertain prejudiced attitude endorsement percentage by White men or White women group. For example, attitude toward feminists was collected on a feeling thermometer 1(*Very cold*) – 100(*Very warm*) scale; ANES respondents who reported strong dislike (i.e., 1) to slight dislike (i.e., a score of 49) were classified as endorsing negative attitudes toward women.³ Items included within the ANES that were rated using Likert scales on a 1(*Strongly disagree*) – 7(*Strongly agree*), were dichotomized such that only answer choices of agreement (i.e., Slightly agree, Agree, and Strongly agree) counted as endorsing the prejudiced attitude. See [Table 1](#) for endorsement percentages. Next, percentages of prejudice overlap for individual items were computed. We paired measures originally on thermometer scales (i.e., feminists and BLM) together and the two measures of attitudes toward groups that seek equality together. In establishing the overlap of prejudice, we calculated separately the percentage who endorsed anti-Black racist statements that also endorsed negative attitudes toward women and the percentage who endorsed negative attitudes toward women that also endorsed anti-Black racist statements. For example, the percentage of White men who disliked feminists that also disliked BLM was 66.6%. Note, that this percentage is different than the percentage of White men who disliked BLM that also disliked feminists (85.7%). Thus, the initial attitude (i.e., anti-Black racism or sexism) of the target group in question alters the criterion percentage of people who endorsed both statements because the criterion who endorsed the first statement differs. See [Figure 1](#) for a visual image. For this reason, known prejudiced attitude is included in the study design and analyses. Endorsement for each overlap accounting for the initial prejudiced attitude type (i.e., racism or sexism) is presented in [Table 2](#).

Estimating sample

Participants

In all, 402 non-Hispanic White, U.S. residing MTurk respondents who served as estimators (50.2% female; 90% Heterosexual; $M_{\text{age}} = 38.92$, $SD_{\text{age}} = 13.31$) completed the survey in March 2018 for compensation. An *a priori* power analysis, conducted using G*Power (Faul et al., 2007), suggested a final sample size of 377 (95% power for an anticipated small effect, $d = 0.10$). Our data collection stop point was set at 400 in case of exclusions. While 21 participants failed the sole attention check question (i.e., “select 55 for this answer”), they were retained because removing them did not significantly change results. Participants provided consent online by clicking a checkbox that affirmed their consent. A sensitivity power analysis indicated the sample had 95% power to detect a small effect ($d = 0.09$).

Procedure and measures

The estimating sample first estimated the percentage (0–100%) of White men or women in the U.S. who endorsed each prejudice statement, so that they would begin to think critically about the endorsement of these statements. Participants were randomly assigned to estimate either the percentage of White men or the percentage of White women. Then, participants estimated prejudice overlap. To assist participants, we provided the following directions: “You will be asked to consider a group of people who hold a specific belief, and then to indicate how likely it is that they hold various other beliefs. For example, we may ask you to consider people who enjoy football and ask you to indicate the percentage of these people who also enjoy soccer. Thus, if you believe that of all the people who enjoy football, 50% also enjoy soccer, you would respond ”50%.”

Further, the “known” prejudice of the White man or White woman target group (i.e., known sexism or anti-Black racism) was a between-subjects factor and was held constant, such that, for example, all participants in the known anti-Black racism condition answered multiple questions assessing how anti-Black racism cues sexism (e.g., percentage of White men/women who believed “Blacks should work their way up without special favors” that also believed that “women seeking equality are demanding special favors?”). Participants in the sexism known condition answered questions like

“What percentage of White men view feminists unfavorably also view Black Lives Matter unfavorably?” Thus, the survey design was a 2(Target group: White men or Women) x 2(Known prejudice: Anti-Black or Sexism) between-subjects design. Lastly, participants reported their endorsement of LTGP before being debriefed and compensated.

Accuracy of prejudice overlap

In the present work, signed discrepancy (\pm) accuracy scores were utilized as they are the best metric as they provide information about the direction and magnitude of inaccuracies (Diekmann et al., 2002; Judd & Park, 1993; Ryan, 1996). Discrepancy scores were computed by subtracting the criterion prejudice overlap scores from participants' estimates of prejudice overlap, such that scores above 0 represent overestimations of prejudice overlap while scores below 0 represent underestimations. For interpreting results, we use the standard for interpreting discrepancy values which suggests that a discrepancy of $< 10\%$ is considered highly accurate and a discrepancy value of $< 20\%$ is near accurate (Jussim et al., 2015; Stevens et al., 2018). Overlap accuracy scores are presented in Table 2 alongside the criterion endorsement and participant estimated percentage for overlap.⁴

Lay theory of generalized prejudice

Participants indicated agreement with three items measuring their LTGP (e.g., Sanchez et al., 2018; Chaney et al., 2021a). The items (e.g., “Holding biased beliefs about one group of people tends to be a sign of holding biased beliefs about other groups of people”) were rated on a scale from 1 (*Very untrue*) to 7 (*Very true*) and had high reliability ($\alpha = .92$; $M = 4.76$, $SD = 1.29$).

Open science practice

All datasets, code, and materials will be published with this manuscript on the Open Science Framework (OSF). Supplemental analyses are also posted on OSF: <https://osf.io/rb7qy/>.

Results

Descriptive statistics presented in Table 1 demonstrate that participants were near accurate at estimating prejudice overlap (range: -11.84 to -6.06). Accuracy on the two overlap items was averaged to create participants' prejudice overlap scores, as the pattern of results was the same across the two overlap items and the items were highly correlated. Correlation analyses indicated LTGP was positively associated with the signed discrepancy accuracy score, such that greater LTGP endorsement was associated with greater estimated overlap in both the known anti-Black racism condition, $r(197) = .18$, $p = .012$, and in the known sexism condition, $r(204) = .16$, $p = .02$. These correlations reflect that greater endorsement of a LTGP was associated with less underestimation of prejudice overlap. See Figure 2.

Next, a hierarchical linear regression was conducted to examine the effect of LTGP on overlap accuracy, while accounting for conditions. Target group (White men = 1, White women = -1), known prejudice (anti-Black = 1, sexism = -1), and participant gender (women = -1 , men = 1), were entered in Step 1. Interactions were entered in Step 2 (i.e., target*known prejudice, target*participant gender, known prejudice*participant gender), and LTGP(standardized) was entered in Step 3. Step 1, $R^2 = .04$, $F(3, 397) = 6.02$, $p = .001$, Step 2, $R^2 = .06$, $F(6, 394) = 3.85$, $p = .001$, and Step 3, $R^2 = .08$, $F(7, 393) = 5.00$, $p < .001$, were significant models of prejudice overlap accuracy. The addition of Step 2 did not significantly increase the models' predictive utility, $R^2\Delta = 0.012$, $p = .18$, while the addition of LTGP into the model at Step 3 did significantly increase the predictive utility, $R^2\Delta = 0.03$, $p = .001$. In Step 3, known prejudice, $B = 3.02$, $SE = 1.12$, $p = .007$, and target group, $B = 3.63$, $SE = 1.12$, $p = .001$, were significant predictors of prejudice overlap accuracy but were qualified by a significant targetgroup*known prejudice interaction, $B = 2.22$, $SE = 1.12$, $p = .048$. Specifically, while there was no effect of target group for those in the known sexism condition, $B = 1.47$, $SE = 1.58$, $p = .35$, participants were

Table 3. Study 2 criterion prejudice overlap and accuracy of estimates by known attitude.

	GSS Endorsement %			Accuracy Discrepancy (\pm) %				
	White Men	White Women	Total	White Men <i>M</i>	White Men <i>SD</i>	White Women <i>M</i>	White Women <i>SD</i>	Total
Known Race Attitude Overlap								
Oppose preferential hiring of Black Americans and women	79.56	80.09	79.83	-19.30	23.26	-40.27	26.13	-29.79
Known Gender Attitude Overlap								
Oppose preferential hiring of women and Black Americans	87.90	94.27	91.09	-24.68	23.37	-45.36	26.90	-35.02

Total columns display endorsement and accuracy across target (i.e., White women or White men) group.

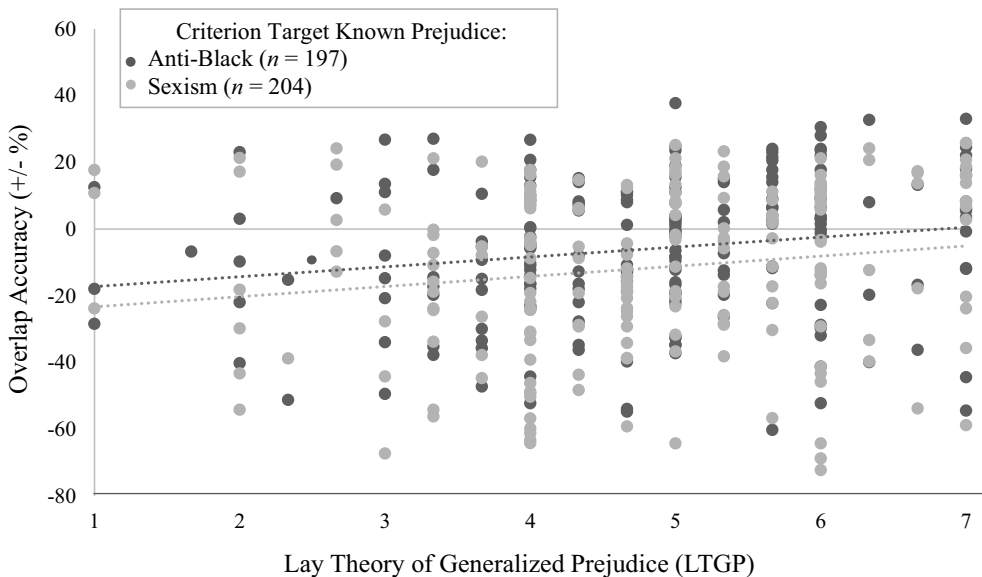


Figure 2. Study 1 Correlations between LTGP and overlap accuracy by known prejudice condition. Note: Discrepancy scores increase such that those at high LTGP were in a highly accurate range, while those at low LTGP were on average outside of the accuracy range and underestimating prejudice overlap.

more accurate in estimating White men's prejudice overlap when estimating sexism from known anti-Black racism cues, $B = 5.99$, $SE = 1.61$, $p < .001$. There was no significant effect of participant gender; target group by participant gender and participant gender by known prejudice interactions were not significant, $ps > .30$. See Table 3, for prejudice overlap accuracy by target group and known prejudice conditions.

Critically, in Step 3, endorsement of LTGP was associated with greater estimations of overlap, $B = 3.77$, $SE = 1.12$, $p = .001$, while accounting for all other factors. As demonstrated in Figure 2, participants who strongly endorsed LTGP were more accurate at estimating prejudice overlap.

Discussion

American White women and men displayed moderate levels of accuracy in estimating the overlap of prejudice toward women and Black Americans held by White men and women in the U.S. (range: 6.06–11.84% off perfect accuracy). Critically, overlap accuracy was positively correlated with

participants' endorsement of LTGP, such that those at higher levels of LTGP were less likely to underestimate prejudice overlap, which increased the accuracy of participants' estimates of prejudice co-occurrence. Findings also suggest that known prejudiced attitude (i.e., anti-Black or sexist) of the target group (i.e., White men or White women) may influence the accuracy of prejudice overlap estimates. Estimates of sexist attitudes from anti-Black racism cues were more accurate than estimates of anti-Black racism from sexism cues, particularly for White male perpetrators. Moreover, participants displayed more accurate perceptions of White men's prejudice overlap, relative to White women's overlap that were underestimated to a greater extent. There was no significant effect of participant gender on overlap accuracy.

Study 2

In Study 2, we examined accuracy in estimating the overlap of anti-Black racism and sexism using measures of attitudes toward affirmative action policies for women and Black Americans reported among White women and men within the American General Social Survey (Smith et al., 2018). Study 2 extends Study 1 by recruiting Black and Latinx participants to examine prejudice overlap accuracy among individuals who are targeted by the prejudiced statements (i.e., Black Americans) while including an additional marginalized racial group that may be particularly impacted by prejudice directed at Black Americans. Specifically, past research suggests that negative attitudes toward Black and Latinx Americans are perceived to highly overlap (Albuja et al., [under review](#)) and there are similar patterns of anticipated stigma amongst the two groups from Black racial identity cues (e.g., Cipollina & Sanchez, 2023; Sanchez et al., 2018). That is, Latino Americans have reported anticipating discrimination from anti-Black discrimination cues (Sanchez et al., 2018). We were therefore interested in examining if direct prejudice (anti-Black racism for Black Americans) would be related to greater accuracy than prejudice transfer (anti-Black racism cuing anti-Latino prejudice for Latinx Americans) and had no a priori hypothesis.

Method and measures

Creating criterion target group scores

Data from American non-Hispanic White men and women in the GSS (2018; $M_{\text{age}} = 49.16$, $SD_{\text{age}} = 17.69$; $N = 896$ to 1,865 by question) was recoded to establish prejudiced attitudes endorsement percentages following the same procedure as Study 1. The GSS item assessing sexism was "Oppose preferential hiring and promotion of women on a scale from 1 (*Strongly support*) to 4 (*Strongly oppose*). The item assessing anti-Black racism was "Oppose preferential hiring and promotion of Blacks" on a scale from 1 (*Strongly support*) to 4 (*Strongly oppose*). We followed the same dichotomizing practices as in Study 1, such that agreement responses were coded as indicative of prejudicial attitudes (endorsement percentages are presented in [Table 1](#)). Lastly, prejudice overlap was calculated.

Estimating sample

Participants

Using the same power analysis from Study 1, MTurk respondents residing in the U.S. ($N = 399$) participated in a study on perceptions in April 2019. Twenty-three participants were removed from analyses for being bot respondents, for answering different demographic criteria at prescreen and at the end of the survey, or for failing more than two instructional attention check items. This resulted in a final sample of 376 participants; 64.90% ($n = 244$) identified as Black/African/Caribbean American and 35.10% ($n = 132$) identified as Hispanic or Latino. Participants were mostly women, 60.4% ($n =$

227), with the rest identifying as men (39.6%, $n = 149$). The estimating sample had a mean age of 34.21 ($SD_{age} = 11.13$). Participants provided consent online by clicking a checkbox that affirmed consent to participate. A sensitivity power analysis indicated the sample had 95% power to detect a small effect ($d = 0.11$).

Procedure and measures

Using the same design as Study 1, participants were randomly assigned to one of four survey conditions that varied target group gender and known prejudice, such that all participants reported their estimates of the percentage of White men or women in the U.S. that endorsed varied attitudes and attitude overlaps with known criterion prejudice toward Black Americans or women. Then, participants' accuracy of prejudice overlap was computed by subtracting the criterion GSS percentages from their estimate for each overlap item. See Table 3 for accuracy scores and GSS criterion endorsement. Lastly, participants reported their LTGP ($M = 5.20$, $SD = 1.25$) among other measures that were included for exploratory analyses examining predictors of overlap accuracy but are not presented in this manuscript (e.g., race consciousness, Pinel, 1999).

Results

As indicated in Table 3, participants were outside of the accuracy range for prejudice overlap. Overall, participants underestimated the overlap of prejudices ($M = -32.01$, $SD = 27.49$). LTGP was positively associated with prejudice overlap scores, $r(375) = .30$, $p < .001$, such that greater LTGP was associated with greater estimations of overlap. Correlations with LTGP are presented in Figure 3.

A hierarchical linear regression was performed to examine the influence of LTGP on prejudice overlap estimates. In Step 1, we entered known prejudice (anti-Black = 1, sexism = -1), participant race (Black = 1, Latino/a/x = -1), and target group (White men = 1, White women = -1). In Step 2, their interactions were entered (known prejudice*target group, known prejudice*participant race, participant race*target group), and in Step 3 we entered LTGP (standardized). Step 1 was a significant predictor of prejudice overlap estimations, $R^2 = 0.17$, $F(3, 371) = 24.68$, $p < .001$, as was Step 2, $R^2 =$

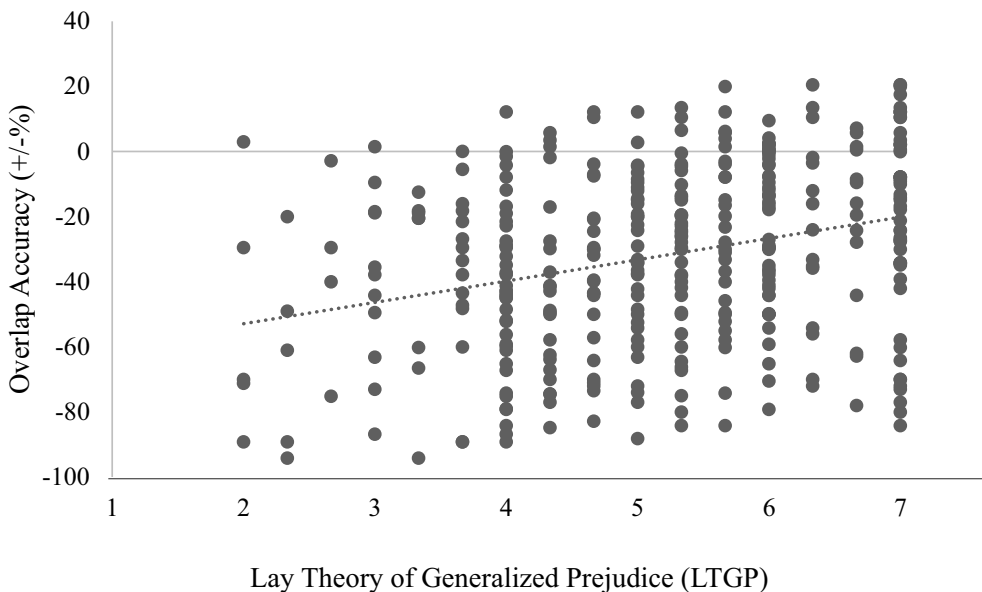


Figure 3. Study 2 correlation between LTGP and prejudice overlap Accuracy.

0.17, $F(6, 368) = 13.81, p < .001$, and Step 3, $R^2 = 0.25, F(7, 367) = 18.91, p < .001$. The addition of Step 2 did not significantly increase the model's predictive utility using a p -value cut off of $< .05$, $R^2\Delta = 0.017, p = .051$, while the addition of Step 3, $R^2\Delta = 0.081, p < .001$, significantly increased the model's predictive utility. In Step 3, participant race was not a significant predictor of prejudice overlap, $B = 1.80, SE = 1.29, p = .16$, but target group, $B = 9.29, SE = 1.29, p < .001$, and known prejudice, $B = 2.67, SE = 1.29, p = .04$, were significant predictors. Accuracy was greater (i.e., less underestimation) when anti-Black racism was known compared to when sexist attitudes were known. Additionally, while the target group*known prejudice interaction, $B = 0.60, SE = 1.24, p = .63$, and participant race*known prejudice interaction, $B = -0.68, SE = 1.30, p = .60$, were not significant, the target group*participant race interaction was, $B = 3.59, SE = 1.29, p = .006$. Participants were more accurate at estimating prejudice overlap for White men than White women (see Table 3), and this effect was greater for Black Americans ($M_{men} = -17.79, SD_{men} = 22.57; M_{women} = -43.90, SD_{women} = 26.23$), $B = 12.89, SE = 1.53, p < .001$, than Latinx Americans ($M_{men} = -29.33, SD_{men} = 24.51; M_{women} = -41.58, SD_{women} = 28.00$), $B = 5.79, SE = 0.07, p = .006$. Critically, replicating Study 1, greater endorsement of LTGP was associated with greater accuracy in estimating prejudice overlap, $B = 7.89, SE = 1.24, p < .001$.

Discussion

Study 2 found that Black and Latinx participants reported inaccurate estimates of White men and women's prejudice overlap due to underestimation. Critically, more strongly endorsing LTGP was associated with greater accuracy in overlap estimates by reducing the extent to which participants underestimated overlap.

General discussion

While past research demonstrated that racial and gender prejudices co-occur (Akrami et al., 2011; Duckitt & Sibley, 2007) and that lay individuals perceive prejudices as co-occurring (e.g., Sanchez et al., 2017), the present research examined the extent to which LTGP was associated with *greater accuracy* estimating the extent to which prejudices co-occur. Across two studies, the present work computed criterion indicators of prejudice overlap toward women and Black Americans and assessed a separate samples' accuracy in estimating the percentage of prejudice overlap among varied target groups (i.e., White men or White women in the U.S.). Results suggest that endorsing LTGP improves accuracy in estimating prejudice overlap (e.g., the percentage of White women in the U.S. who hold both racist and sexist beliefs), by reducing prejudice overlap underestimation. Together, we examined the accuracy of prejudice overlap estimates, whether LTGP predicted greater accuracy, and whether criterion or estimator participant race and gender influenced the level of accuracy.

How accurate were estimations of overlap overall?

The present research documents variability in the extent to which individuals can accurately gauge the extent to which prejudice toward one social group (e.g., Black Americans) is indicative of prejudice toward another social group (e.g., women). In Study 1 participants displayed a high degree of accuracy in estimating White men's and women's prejudice overlap (range: -11.84% to -6.06% from criterion value), while in Study 2 estimates of White women and White men were not accurate and participants largely underestimated prejudice overlap ($> -30\%$). Underestimation of overlap may be, in part, due to the differences in the criterion reports of prejudice. In Study 2, the criterion sample (Smith et al., 2018) had roughly 30% greater endorsement of modern prejudice toward Black Americans when compared to endorsement in a different sample two years earlier (i.e., 2016, Study 1, see Table 1). Moreover, in Study 1, 69.36% of White Americans (ANES, 2016) endorsed statements indicative of prejudice toward both Black Americans and women (see Table 2), while in Study 2, 85.49% did so (see Table 3). Across these two samples, the Study 2 criterion sample and measures indicated significantly greater

racism and sexism overlap than the Study 1 criterion sample. We propose that this increased presence of prejudice was critical in the underestimation of prejudice overlap in Study 2, and not the change in estimators (racial demographics).

Despite these limitations, examinations of the accuracy of prejudice co-occurrence beliefs can vastly improve our understanding of how expectations of prejudice influence marginalized group members' well-being. Indeed, underestimations of prejudice can be maladaptive, and overestimations can be dangerous (see Major et al., 2002, 2013). Yet, little to no research has tethered estimates to criterion amounts of prejudice present within those contexts. For instance, while past work suggests that White women anticipate sexism from a racist evaluator (Sanchez et al., 2017; Chaney et al., 2021a) this prior work has yet to examine if that expectation is valid. The present work provides initial evidence that individuals may be fairly accurate at estimating bias from a bias cue directed at another stigmatized group, tending toward underestimating this overlap, though future research is needed to examine overlap accuracy in interpersonal interactions.

Did LTGP influence accuracy in overlap estimates?

Past research suggests that those at high LTGP are particularly susceptible to identity threat because prejudice directed toward others also signals the presence of prejudice toward one's ingroup (e.g., Chaney et al., 2021a; Sanchez et al., 2018). We argue that these expectations of ingroup threat from outgroup threat cues are often accurate given that prejudices toward derogated social groups stem from an underlying ideology (Duckitt & Sibley, 2007). Consistent with our hypotheses, LTGP endorsement was associated with greater accuracy in estimating prejudice overlap across studies and samples. In Studies 1–2, participants' estimates of prejudice overlap were more accurate the more they endorsed LTGP, an effect driven by lower rates of underestimating prejudice overlap.⁵ These findings suggest that endorsement of LTGP improves accuracy in prejudice overlap estimates. As such, this lay theory may reflect learned associations between prejudices in the world that people are sensitive to. As someone sees racism and sexism espoused by the same people, a lay theory of generalized prejudice may form to reflect the gathered data about how prejudice exists in the world. Indeed, future work should examine the directionality between study variables and whether LTGP is bolstered after instances of viewing the co-occurring nature of prejudice in an individual's daily lives.

Variables affecting accuracy

The present research sought to address several other variables that may influence overlap accuracy, including perpetrators' social identity (White man vs. White woman), estimators' social identities, and known prejudiced attitude (e.g., estimating sexism from racism cue). Across studies, participants were more accurate at estimating prejudice overlap for prototypical perpetrators of sexism and racism (i.e., White men; Baron et al., 1991; Inman & Baron, 1996). For instance, White participants in Study 1 underestimated prejudice overlap among White men in the U.S. by only 5%, while they underestimated prejudice overlap among White women by 13%. In Study 2, estimates of White men's prejudice overlap by Black and Latinx Americans were also more accurate than estimates of White women's prejudice overlap. These findings suggest that beliefs about prejudice overlap are sensitive to information about perpetrators, such that people adjust their estimates as they accrue more information about the perpetrator. As past research documents improvements in accuracy when more individuating information (e.g., age, political orientation) is known (e.g., Swann, 1984), we encourage future research to use dyadic research designs to assess the accuracy of prejudice estimates made by marginalized group members during or before intergroup interactions.

There were varied methodological decisions made in the present manuscript as the first manuscript to measure *perceptions* of the overlap of prejudices toward multiple social groups. First, we rely on reports of discrepancy accuracy scores rather than absolute value scores. While in prior work absolute value scores told researchers about the relative degree to which participants were close to the "true"

value of a factor (e.g., a conversation partners' agreeableness), in the present work highly valuable information about the directionality of perceptions (i.e., overestimations or underestimations) would be lost. Using absolute values would thus make participants who over and underestimate by 10% similarly inaccurate but for vastly different reasons. In addition, the present work dichotomized estimators' attitudes reported in national surveys into endorsed or not endorsed categories to improve interpretation of study questions for study participants. Indeed, estimating the percentage of White men who feel "somewhat warm" when compared to "very warm" toward Black Americans that also feel "somewhat warm" and "very warm" toward feminists would have complicated the study design and placed a burden on participants cognitively. However, future work exploring perceptions of the accuracy of overlap could consider these nuances in a similar way of examining perceptions of the overlap of benevolent and hostile sexism (see Rudman & Fetterolf, 2014), as participants may be better estimators of the overlap of more blatantly racist or sexist targets when compared to more ambiguously racist or sexist targets.

Estimating samples' demographics varied across studies. Notably, there was no effect of participant gender on overlap accuracy in both studies. Study 2 found an interaction with participant race, indicating that Black Americans were more accurate estimators of White men's prejudice overlap than Latinx Americans, while there was no race effect on the accuracy of White women's overlap. These findings suggest that individuals may be better at estimating prejudice overlap when their ingroup is involved but further replication is needed. Importantly, this package of studies was not designed to experimentally test the accuracy of estimating ingroup vs. outgroup-directed prejudice from ingroup or outgroup cues, but this is an important area for future work, given that perceptions of prejudice toward one's ingroup and similarly stigmatized others can impact biopsychosocial reactions to bias (see Chaney et al., 2021a). This future work would likely benefit by accounting for the effect of experiences with discrimination or contact with outgroup members (see Bernieri et al., 1994; Swann, 1984) as such factors likely shape awareness of prejudice overlap. In this area of work, an exploration into other cognitive biases that may shape perceptions of prejudice (or accuracy of prejudice overlap) is important, given that there are varied biases (e.g., self-protective biases) that may come into play when estimating prejudice in society (see Czopp & Monteith, 2003).

Our studies varied whether participants estimated sexism from racism, or racism from sexism (i.e., known prejudice). Participants' estimates of sexism from racism cues were more accurate than estimates of racism from sexism, perhaps because racism is perceived as a more offensive and less acceptable prejudice (Cowan & Hodge, 1996; Czopp & Monteith, 2003; Woodzicka et al., 2015). Less accurate underestimations of the co-occurrence of racial prejudice from gender prejudice cues within the present work highlights the need for future research exploring the directionality of beliefs about generalized prejudice, especially among prejudices with varying degrees of acceptability. For example, as benevolent sexism is seen as less offensive than hostile sexism (Barreto & Ellemers, 2005), future research may find that individuals are less likely to anticipate racism from a benevolent sexism cue than a hostile sexism cue (see Glick & Fiske, 2018).

Indeed, one can think of implications of framing prejudice overlap as a method to harness pro-equality intergroup attitudes and progress. For instance, prior work on framing (see Levin et al., 1998) suggests that positioning information to participants' values helps with internalization of the information. In the case of prejudice, highlighting common amoral actions against individuals and systems that are prejudiced may increase uptake of LTGP endorsement among individuals with strong moral/egalitarian values. Leveraging LTGP may inform anti-racist training and research on allyship practices. Indeed, the activism initiative "Shine a Light" aims to fight antisemitism and employs ads that state: "One form of hate leads to others," and "When you speak out against one form of hatred you are fighting against all forms of hatred" (Light, 2022). Such claims are supported by empirical research. Highlighting the covariance between racist and sexist attitudes may increase collective allyship intentions (Chaney & Forbes, 2023; Pham et al., 2023), though this work should be clear to denote differences in groups' experiences alongside common struggles to best address the needs of different marginalized groups. Harnessed LTGP among privileged groups may aid in the recognition of

systemic and interpersonal prejudices directed at marginalized groups, while LTGP among marginalized groups may increase stigma consciousness.

Importantly, accuracy research is necessarily limited by the available representative data of intergroup attitudes. We utilized the GSS and ANES because they are nationally representative surveys with multiple measures of intergroup attitudes toward women and Black Americans. Inherent in the design when utilizing national datasets, there was about a two-year time lag between when the criterion samples' attitudes were collected and when participants in our samples estimated those attitudes. While this limitation is common in much of previous accuracy research (e.g., Diekmann et al., 2002), there is the possibility that estimates of prejudice overlap accuracy would be more accurate within closer timeframes as attitudes and awareness of those attitudes may shift with cultural changes. However, we expect that general degrees of overlap of anti-Black racism and sexism remain consistent across time, given their roots in generalized prejudice (see Duckitt & Sibley, 2007). We encourage future research to examine the accuracy of prejudice overlap estimates among non-prototypical perpetrators (e.g., overlap of race and gender attitudes among Black Americans) and the overlap of other prejudices (e.g., negative attitudes toward sexual minorities and Asian Americans). This work may find that accuracy is reduced when assessing less prototypical perpetrators and among prejudices toward social groups that are perceived to be less similar.

Conclusion

The present work documents variability in the accuracy of estimating the co-occurrence of prejudice toward Black Americans and women and explores the importance of perpetrator prototypicality and known prejudice in shaping overlap accuracy. Results suggest that overlap estimates are more accurate when estimating sexism from anti-Black racism cues when compared to the reverse (estimating anti-Black racism from sexism cues) and that prejudice overlap estimates of prototypical perpetrators (i.e., White men) were more accurate relative to less prototypical perpetrators. Critically, we demonstrate the endorsement of LTGP is related to greater accuracy in estimates of the co-occurrence of prejudice toward women and Black Americans using national samples. We find evidence that endorsing LTGP reduced underestimation of prejudice overlap which resulted in more accurate overlap estimates. Together, the present research highlights the importance of examining perceivers' beliefs about the co-occurrence of prejudices toward varied social groups as such beliefs influence the extent to which they are accurate perceivers of prejudice with implications on intergroup interactions, stress, and coalition building.

Author's Note

Studies were approved by Rutgers University's institutional IRB board (Protocol#: 2018001900) and all participants consented to study protocols and data use online. The present manuscript follows ethical guidelines specified in the APA code of conduct. No permissions from other sources were needed. The authors report there are no competing interests to declare. Data files, analysis syntax, materials, and supplemental analyses associated with the manuscript are posted openly online on the Open Science Framework (OSF; link: <https://osf.io/gnzsh>).

Notes

1. We explored accuracy of old-fashioned prejudice overlap in Study 2 in an exploratory fashion, with results reported in the Supplement; limitations in measuring self-reported old-fashioned prejudice (social desirability in self-reports of old-fashioned prejudice; see Krumpal, 2013) hinder the interpretation of results. For example, old-fashioned prejudice in the GSS criterion sample was low (only 6.44% of White men endorsed an old-fashioned anti-Black statement), while endorsement of modern prejudices were substantially higher (over 73%).
2. Note, measure wording referring to Black Americans as "Blacks" throughout the present paper was made in the decision to utilize wording used in the national surveys to maintain validity when asking participants to estimate the endorsement of such statements.

3. Dichotomizing prejudice endorsement was imperative to create overlap estimates that were easily interpretable to participants. For example, participants would likely have a difficult time estimating the percentage of White men in the US. who felt slightly cold toward BLM that also felt very cold toward feminists.
4. If absolute value scores were to be used in the present research, valuable information about the directionality of overlap perceptions (i.e., over or underestimations would be lost). Using absolute values would thus make participants who over and underestimate by 10% similarly inaccurate but for vastly different reasons. Correlations with absolute value accuracy scores are reported within the Supplement for each Study.
5. An additional study with an undergraduate sample revealed the same pattern of results. See supplemental analyses.

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data availability

The data will be made available upon request by contacting the corresponding author

Open scholarship



This article has earned the Center for Open Science badges for Open Data and Open Materials through Open Practices Disclosure. The data and materials are openly accessible at <https://doi.org/10.1080/00224545.2023.2246636>.

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