

IDEOLOGICAL DIFFERENCES IN RACE AND GENDER STEREOTYPING

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We investigated whether political ideology was associated with the endorsement of race and gender stereotypes, and examined motivational and cognitive factors that could account for any ideological differences. Across five preregistered studies, people who were more politically conservative more strongly supported the use of stereotypes to make social inferences based on race, and endorsed specific stereotypes about racial and gender groups. An internal meta-analysis indicated that a greater desire to uphold group-based hierarchy and lower epistemic motivation to deliberate explained, in part, why conservatives were more likely to endorse the use of stereotypes, while cognitive ability did not have a significant explanatory role. These findings suggest that characteristics of individuals not inherently linked to any particular social group can shape perceptions about whether stereotypes are valid, and highlight how basic psychological motivations lead liberals and conservatives to diverge in their perceptions of groups.

Keywords: ideology, stereotyping, epistemic motivation, social dominance orientation, cognitive ability

In 2018, the American Psychological Association released new guidelines for counseling boys and men in which they noted potential harms of enforcing “traditional masculinity” in society (Pappas, 2019). The new guidelines generated extensive

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public discussion, with some prominent liberals lauding the guidelines and some conservatives condemning them (Fortin, 2019). Relatedly, a recent Pew poll found that conservative Republicans were more likely than liberal Democrats to say it is beneficial that “society looks up to masculine men” (Horowitz, 2019). These examples highlight the possibility that a person’s political ideology might be associated with the extent to which they endorse cultural beliefs—or stereotypes—about individuals within a group. In the present research, we examined whether political conservatism would be associated with the endorsement of gender and race stereotypes. We also examined motivational and cognitive factors that contribute to this ideological difference.

STEREOTYPE ENDORSEMENT

Stereotypes are culturally held beliefs about groups; for example, the notion that men are more agentic and women are more communal (Fiske, 1998). A long history of research in psychology has examined the stereotypes that exist about racial and gender groups in particular (Devine & Elliott, 1995; Katz & Braly, 1933; Madon et al., 2001). Race and gender stereotypes within a cultural context tend to be widely known (Devine, 1989). However, there is considerable variation in whether people *endorse* stereotypes. Specifically, cognitive and motivational factors can impact people’s explicitly held beliefs about whether group stereotypes are accurate (Bodenhausen & Macrae, 1998). Although people might be aware of stereotypes, they can regulate the extent to which they consciously endorse those beliefs. The degree to which people endorse stereotypes holds implications for a variety of outcomes that shape racial and gender inequality, such as everyday interactions (Snyder, Tanke, & Berscheid, 1977), academic achievement (Delisle, Guay, Sénécal, & Larose, 2009), and hiring evaluations (Baltes & Rudolph, 2010). Thus, understanding the factors that are associated with stereotype endorsement stands as an important question for scientific inquiry.

What factors are associated with believing that individuals possess the traits, characteristics, and interests that are stereotypical of their group? Most previous research examining this question has focused on factors that are inherently linked to the social group in question. For example, holding less prejudicial attitudes toward a group (Devine, 1989; Whitley, 1999), believing that there is not a discrete “essence” that separates groups (Bastian & Haslam, 2006), increased contact with group members (Aberson & Haag, 2007), and taking the perspective of a member of a group (Galinsky & Moskowitz, 2000) are all associated with less stereotype endorsement. This work documents beliefs or experiences associated with reduced stereotype endorsement that are *directly involved* with the target group. However, little research has examined more general factors associated with stereotype endorsement across multiple groups. In the present research, we examined whether more domain-general individual differences contribute to understanding whether and why people endorse race and gender stereotypes.

THE ROLE OF POLITICAL IDEOLOGY IN STEREOTYPE ENDORSEMENT

Historically, scholars examined the role of political ideology in shaping overtly political outcomes, such as candidate preferences (Leventhal, Jacobs, & Kudirka, 1964) and attitudes toward policies (Sidanius, Pratto, & Bobo, 1996). Importantly, researchers have more recently begun to systematically examine how political ideology can shape non-political outcomes. Specifically, researchers have drawn from theoretical ideas of motivation and cognition to understand how political ideology might be associated with the way in which people perceive and interpret the world (e.g., Graham, Haidt, & Nosek, 2009). Here, we examined whether political ideology might be associated with the extent to which people embrace race and gender stereotypes as being valid reflections of groups.

Some indirect evidence suggests that people who are more politically conservative might be inclined to endorse stereotypes to a greater extent than people who are liberal. For example, conservatives are more likely to believe that social category memberships can be accurately gleaned through relying on physical appearance (Stern, 2019), and they are more likely to use stereotypes when placing people into social groups (e.g., categorizing feminine men as gay; Stern, West, Jost, & Rule, 2013). Further, conservatives direct more negative treatment toward individuals who deviate from the stereotypes of their social group (e.g., masculine women; Hehman et al., 2014).

More direct evidence also suggests that conservatives are more likely than liberals to endorse stereotypes. Carter, Hall, Carney, & Rosip (2006) found that people who embraced more conservative worldviews indicated greater support for the usage of stereotypes when making inferences about others. Additionally, some research has found that conservatives are more likely to endorse stereotypes about members of marginalized groups, such as racial and sexual minorities (Dixon, 2006; Heaven & Oxman, 1999; Reyna, Henry, Korfmacher, & Tucker, 2006). Importantly, however, this previous research is limited in several ways. First, *general beliefs* about whether stereotyping is a valid means for making judgments might not translate into endorsement of stereotypes about specific social groups. Second, in recent years, scholars have noted that research examining ideological differences has primarily focused on perceptions of lower status groups that are perceived as being liberal, which creates a limited understanding of how liberal-conservative differences shape intergroup domains (e.g., Brandt, Reyna, Chambers, Crawford, & Wetherell, 2014). Research examining stereotypes about specific groups has also generally focused on lower status groups in society (e.g., Dixon, 2006; Heaven & Oxman, 1999), which leaves open the possibility that ideological differences in stereotyping might not generalize to higher status groups. We advance beyond past work and (in two studies) examine whether there are ideological differences in stereotyping of both higher and lower status groups. Third, there is not a clear understanding of the mechanisms that explain *why* liberals and conservatives might diverge in their endorsement of stereotypes. We seek to address these limitations in the present research.

WHY MIGHT CONSERVATIVES BE MORE LIKELY TO ENDORSE RACE AND GENDER STEREOTYPES?

Previous research has found that political ideology is associated with a variety of different motivational and cognitive factors. From a developmental perspective, it is most likely that psychological attributes causally contribute in some form to the ideological orientation that young adults initially adopt as they begin to learn about political issues (e.g., Block & Block, 2006). However, scholars have faced a persistent “chicken-and-egg” problem concerning the continued direction of causality among adults who have already adopted an ideology. Researchers have noted that this question is particularly challenging to conclusively answer, given that the preponderance of relevant studies are cross-sectional (Hibbing, Smith, & Alford, 2014). Additionally, the few studies that employ longitudinal techniques were not designed in a manner to adjudicate between differing directions of causality (e.g., Alwin, Cohen, Newcomb, 1991; Matthews, Levin, & Sidanius, 2009).

Despite these challenges, some scholars have contended that it is theoretically plausible for ideology to causally impact motivations and abilities. For example, Jost, Noorbaloochi, and Van Bavel (2014, p. 317) argued that “general ideological postures, if they are consistently adopted, could shape psychological and physiological characteristics.” This idea is also broadly consistent with research proposing that continuously activated belief systems and ways of viewing the world can impact goals and abilities in a long-term manner (Dweck, 2017; Gollwitzer, 1986). Given that conservative (versus liberal) beliefs are more simple, organized, and resistant to change (Jost, Ledgerwood, & Hardin, 2008; Tetlock, 2007), it is feasible that consistently adopting particular ideological views influences the motivations, goals, and abilities that people possess. Nevertheless, given the existing debate surrounding this topic, we return to theoretical and empirical aspects of this point in the general discussion.

There are a number of potential constructs that might help to explain why conservatism would be associated with stereotype endorsement. We focus on three possible mechanisms: the epistemic motivation to deliberate, the motivation to uphold hierarchy, and cognitive ability. We chose these constructs because (a) they are theoretically distinct from one another, (b) they can be measured with well-validated scales that do *not* include items assessing conservatism, and (c) they are *psychological* constructs (rather than demographic characteristics) that are invariant in their meaning across time and place. Assessing the explanatory role of these constructs provides a wide-ranging test of multiple potential contributors to the association between conservatism and greater stereotyping, though these constructs are not intended to be an exhaustive list of possible mediators. We outline below why each of these three constructs might help to explain a relationship between ideology and stereotyping.

First, political ideology is related to various “epistemic” motivations (Jost, Glaser, Kruglanski, & Sulloway, 2003; Jost, Sterling, & Stern, 2018). For instance, political conservatives possess a greater desire to avoid ambiguity and deliberation. When people first encounter a new individual, there is a high degree of ambiguity

surrounding the person, such as their interests, preferences, and traits. Utilizing category stereotypes (e.g., men are competent) allows people to “fill in the blanks” and quickly form representations about others (Fiske, 1998; Tajfel, 1981). Thus, conservatives’ stronger motivation to avoid ambiguity and deliberation might lead them to embrace category stereotypes.

Second, conservatives place a greater value on enforcing social hierarchy in which some groups possess more access to social and economic resources than do others (Ho et al., 2015). Stereotypes about groups—both positive and negative—facilitate the maintenance of extant social hierarchy through reinforcing current societal roles and positions (Czopp, Kay, & Cheryan, 2015). As such, conservatives’ stronger motivation to uphold group-based hierarchy might produce greater stereotype endorsement.

Third, previous research has linked political ideology to cognitive ability—the extent to which a person can engage in higher forms of cognitive processing, such as complex problem solving and reasoning. Past work has found that conservatism tends to be associated with lower cognitive ability (Onraet et al., 2015). Cognitive ability concerns whether a person *can* engage in complex forms of reasoning, which is conceptually and empirically distinct from whether they are *motivated* to do so (Cacioppo, Petty, Feinstein, & Jarvis, 1996). There is reason to believe that cognitive ability would shape stereotype endorsement. Stereotypes are overgeneralized representations that are woven into the fabric of how groups are discussed and portrayed on an everyday basis (Tajfel, 1981). Moving beyond these representations necessitates considering the possibility that not all members of a social group will share the same characteristics, a process that may strain cognitive resources. Thus, lower cognitive ability among people who are more politically conservative might also predict greater stereotype endorsement.

THE PRESENT RESEARCH

Across five preregistered studies, we examined whether political conservatives would be more likely than liberals to endorse stereotypes about racial and gender groups. We examined this question through assessing general support for race-based stereotyping (Studies 1 and 2), and measuring endorsement of specific stereotypes about gender (Studies 3 and 4) and race (Study 5). We also investigated the explanatory role of epistemic motivation (Studies 1–5), hierarchy-enhancing motivation (Studies 1–5), and cognitive ability (Study 2–5). Given that explicit and implicit attitudes toward the group in question are often associated with stereotype endorsement (e.g., Kurdi, Mann, Charlesworth, & Banaji, 2019; Whitley, 1999), we also measured these constructs and examined whether observed relationships remained after accounting for their role in predicting stereotype endorsement.

STUDY 1

In Study 1, we examined whether conservatives would be more likely than liberals to endorse stereotyping based on racial group membership as a valid means of

making inferences. We also examined whether ideological differences in epistemic and hierarchy-enhancing motivations would explain conservatives' greater support for stereotyping.

METHOD

Participants. We targeted a sample size of 450 participants, which would provide more than 99% power for detecting a medium effect of $r = .30$, and 57% power for detecting a small effect of $r = .10$. The final sample was slightly larger: 498 participants (332 women, 165 men, 1 no gender specified; 379 White, 39 Black, 11 East Asian, 10 South Asian, 7 American Indian, 3 Native Hawaiian, 31 multiracial, 16 "other" races, 2 no race specified; $M_{\text{age}} = 32.46$ years, standard deviation [SD] = 14.55) completed the study through the Project Implicit research pool. Across studies, we limited analyses to participants who completed the full study. Additionally, for studies that included the Implicit Association Test (IAT; Studies 1, 2, 4, and 5), we excluded participants from analyses who had more than 10% of critical IAT trials faster than 300ms (Nosek, Greenwald, & Banaji, 2007). In Study 1, four participants (0.80% of the total sample) met this criterion and were excluded. Degrees of freedom vary across analyses because participants could choose to skip items.

For all studies conducted on Project Implicit, participants were only eligible if they reported being a US citizen when first registering for the research pool. The sample size, methodology, and analytic plan for all studies were preregistered. Study 1's preregistration can be found at <https://osf.io/vx9re/>. The online supplement as well as materials, data, and analysis syntax for all studies can be accessed at <https://osf.io/dxaej>. We report all measures, manipulations, and exclusions in these studies. We also report all studies that were conducted during this line of research.

Procedure. Participants completed a series of measures, described below. Measures were administered in a randomized order, except for the IAT, which was administered last.

Stereotype endorsement. To assess participants' beliefs about whether category stereotypes are a valid means of making inferences, they completed the six-item Bayesian Racism scale (Uhlmann, Brescoll, & Machery, 2010). Sample items include, "If you want to make accurate predictions, you should use information about a person's ethnic group when deciding if they will perform well," and "When the only thing you know about someone is their race, it makes sense to use your knowledge of their racial group to form an impression of them." Participants responded using a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. We created a composite of the items ($\alpha = .63$).

Intolerance of ambiguity. To assess epistemic motivation, we measured the extent to which participants prefer simplicity over ambiguity. They completed the 16-item

Intolerance of Ambiguity Scale (Budner, 1962). Sample items include, "An expert who doesn't come up with a definite answer probably doesn't know too much," and "People who insist upon a yes or no answer just don't know how complicated things really are." Participants responded using a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. We created a composite of the items ($\alpha = .52$).

Motivation to uphold hierarchy. The motivation to uphold hierarchy was assessed using the 16-item Social Dominance Orientation scale (SDO₇; Ho et al., 2015). Sample items include, "An ideal society requires some groups to be on top and others to be on the bottom," and "It is unjust to try to make groups equal." Participants responded using a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. We created a composite of the items ($\alpha = .86$).

Political ideology. Ideology was measured using a single item: "Where on the following scale of political orientation would you place yourself?" (1 = *extremely liberal*, 4 = *moderate*, 7 = *extremely conservative*; $M = 4.24$, $SD = 1.76$).¹ This single-item assessment is commonly used to measure ideology (Graham et al., 2009; McAdams et al., 2008).

Explicit racial attitudes. Participants completed two measures of explicit racial attitudes. First, participants completed a measure of relative explicit preference, which asked, "Which statement best describes you?" (1 = "I strongly prefer Black people to White people," 4 = "I like Black people and White people equally," 7 = "I strongly prefer White people to Black people"; $M = 4.17$, $SD = 0.91$). Previous research has commonly utilized a similar single item of relative preference as a measure of intergroup attitudes (e.g., Axt, 2018).

Second, participants reported their attitudes toward members of different racial groups (White, Black, Hispanic, and Asian Americans) using a feeling thermometer that ranged from 0 (*Not warm at all*) to 100 (*Extremely warm*). Participants were informed that "The warmer or more favorable you feel toward the group, the higher the number you should give it. The colder or less favorable you feel, the lower the number." We created a composite of attitudes toward racial minorities (Black, Hispanic, and Asian Americans). We then created a difference score by subtracting this composite from attitudes toward Whites. Positive values indicate holding more positive attitudes toward White Americans than toward racial minorities.

Implicit racial attitudes. To assess implicit racial attitudes, participants completed a seven-block Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), measuring the strength of association between the concepts "Good" and "Bad" with the categories "African Americans" and "European Americans." Each

1. Project Implicit participants tend to be more liberal than the general population (e.g., Schmidt & Axt, 2016). To ensure we obtained a sample in which participants spanned the ideological spectrum, we sought to recruit a roughly equal number of liberals and conservatives in all studies conducted on Project Implicit.

racial category was represented by six gray-scale images of faces (three male, three female). The IAT followed the procedure outlined in Nosek, Greenwald, and Banaji (2007), and was scored by the *D* algorithm (Greenwald, Nosek & Banaji, 2003). Positive IAT *D* scores reflected greater association strength between positive and European American versus African American.

RESULTS

To conserve participants, we preregistered a sequential analysis (Lakens, 2014; Sagarin, Ambler, & Lee, 2014). Specifically, we planned to analyze the data after 450 eligible participants and then potentially again after 800 eligible participants. Results revealed that we could end data collection after 450 participants, but given these two potential rounds of data analysis, our *p*-value threshold for rejecting the null hypothesis was .032.

Associations Among Ideology, Motivations, and Endorsement of Stereotyping. Relationships among variables were consistent with predictions. Zero-order correlations can be found in Table 1. Greater conservatism was associated with stronger endorsement of racial stereotyping, a stronger motivation to uphold hierarchy, and a greater intolerance of ambiguity. A stronger motivation to uphold hierarchy and a higher intolerance of ambiguity were also associated with greater endorsement of racial stereotyping.

Mediation Model. We next examined whether the motivation to uphold hierarchy and intolerance of ambiguity in part accounted for why conservatism was associated with greater endorsement of racial stereotyping. To test our question, we used Model 4 in PROCESS to conduct all mediation models (Hayes, 2017). We conducted a model in which ideology was specified as the exogenous variable, the motivation to uphold hierarchy and intolerance of ambiguity as mediator variables, and stereotype endorsement as the outcome variable (Figure 1). In alignment with recent recommendations (Yzerbyt, Muller, Batailler, & Judd, 2018), throughout all studies we state that an indirect effect is significant only when three criteria are met. First, the *a* path (the relationship between the exogenous variable and the mediator variable) must be significant. Second, the *b* path (the relationship between the mediator variable and the outcome variable when adjusting for all variables in the model) must be significant. Third, the confidence interval of the indirect effect cannot contain zero. In other words, there needs to be a significant reduction in the total effect (the *c* path) when adjusting for the mediator variable. Consistent with setting α at .032, we calculate the 97% confidence interval (CI) of the indirect effect. CIs for indirect effects are presented in Table 2 for all studies.

The indirect effect of ideology predicting stereotype endorsement through the motivation to uphold hierarchy was significant. However, the *b* path for the indirect effect through intolerance of ambiguity was not significant and the confidence interval of the indirect effect contained zero, indicating that the indirect effect was not significant. When including implicit racial attitudes and both measures of

TABLE 1. Correlations Among Variables in Study 1

	1	2	3	4	5	6
1. Ideology	—					
2. Stereotype Endorsement	.33	—				
3. Motive to Uphold Hierarchy	.41	.51	—			
4. Intolerance of Ambiguity	.28	.18	.25	—		
5. Explicit Racial Attitude (1)	.29	.27	.23	.08†	—	
6. Explicit Racial Attitude (2)	.35	.27	.25	.12**	.64	—
7. Implicit Racial Attitude	.20	.18	.14**	.05^	.26	.28

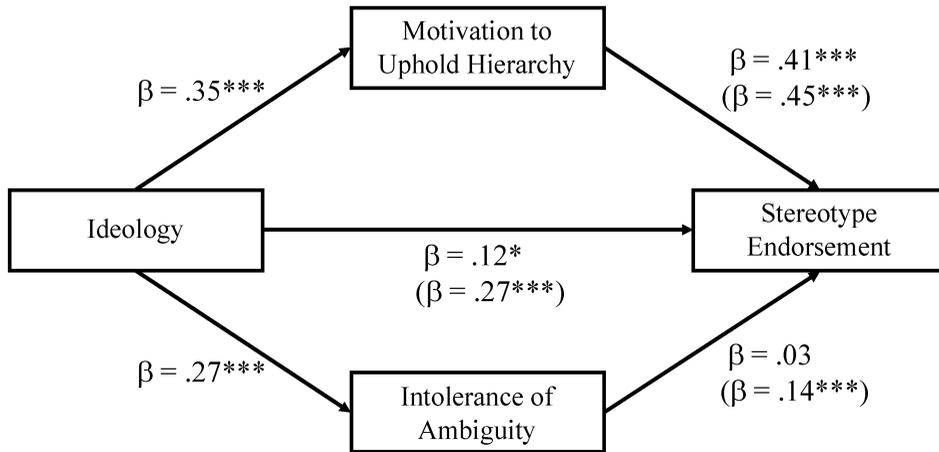
Note. Explicit Racial Attitude (1) indicates the relative preference item and Explicit Racial Attitude (2) indicates the feeling thermometer.

^ $p > .10$, † $p < .10$, ** $p < .01$, no symbol significant at $p < .001$

explicit racial attitudes as additional mediator variables, the indirect effect through the motivation to uphold hierarchy remained significant. Thus, the motivation to uphold hierarchy in part accounted for the relationship between greater conservatism and stronger endorsement of racial stereotyping, even after accounting for the role of implicit and explicit racial attitudes.

Adjusting for Ideological Extremity. Recent research has highlighted that ideological extremity might be a better contributor to intergroup outcomes (e.g., prejudice) than is conservatism (e.g., Brandt & Crawford, 2019). As such, in all studies we conducted a series of exploratory analyses examining whether ideological extremity was also associated with endorsement of stereotyping. To create an extremity score for each participant, we calculated the absolute deviation of each participant’s ideology from the scale midpoint (4). The extremity scale ranged from 0 to 3, with higher numbers indicating greater ideological extremity. Extremity was not associated with stereotyping either with ($p = .96$) or without ($p = .76$) conservatism as a covariate. Additionally, conservatism remained significantly associated with stereotyping when adjusting for extremity, $B = .20$, $SE = .03$, $t(485) = 7.69$, $p < .001$, $r_{sp} = .33$.

Adjusting for Demographics. Older individuals and members of higher (versus lower) status groups sometimes report being more conservative (Norrander & Wilcox, 2008; Truett, 1993). As such, in all studies we also conducted exploratory analyses examining the relationship between conservatism and endorsement of racial stereotyping while adjusting for age, sex (male versus female), and race (White versus non-White). Conservatism remained significantly associated with racial stereotyping, $B = .20$, $SE = .03$, $t(473) = 7.18$, $p < .001$, $r_{sp} = .31$. In all studies we also examined whether any significant indirect effects remained significant when adjusting for age, sex, and race. When adjusting for the demographics, the indirect effect of ideology predicting stereotyping through the motivation to uphold hierarchy remained significant, 97% CI [.0789, .1546].



Note. * $p < .032$, *** $p < .001$

FIGURE 1. Mediation model in which political ideology predicts stereotype endorsement through the motivation to uphold hierarchy and intolerance of ambiguity (Study 1). Explicit and implicit racial attitudes are included as covariates. Values in parentheses represent direct relationships; values without parentheses represent relationships after including all variables in the model.

DISCUSSION

In Study 1, we found that conservatives expressed greater support for the use of stereotypes based on a person's racial group membership than did liberals. Additionally, the motivation to uphold hierarchy, but not epistemic motivation, explained in part why conservatives were more supportive of racial stereotyping.

STUDY 2

In Study 2 we sought to replicate and extend the results of the Study 1 in two ways. First, we utilized a different assessment of epistemic motivation to determine whether the observed results in the first study would be constrained to the specific measure used, which was also low in internal reliability. Second, in addition to epistemic and hierarchy-enhancing motivations, we assessed whether cognitive ability would play an explanatory role in conservatives' greater support for racial stereotyping.

METHOD

Participants. We targeted a sample of 500 participants, which would provide greater than 99% power for detecting an effect of $r = .20$, and 61% power for detecting an effect of $r = .10$. In total, 576 participants (361 women, 213 men, 2 no gender specified; 450 White, 44 Black, 10 East Asian, 7 South Asian, 4 American Indian, 2 Native Hawaiian, 45 multiracial, 12 "other" races, 2 no race specified; $M_{\text{age}} = 32.58$

TABLE 2. 97% Confidence Intervals of Indirect Effects in All Studies

	Study 1	Study 2	Study 3	Study 4	Study 5
Model 1 Mediator Variables					
1. Motivation to Uphold Hierarchy	[.0780, .1518]	[.1121, .1848]	[.0972, .2143]	[.0109, .9560]	[.0653, .6127]
2. Epistemic Motivation	[-.0113, .0222]	[.0021, .0213]	[-.0038, .0201]	[.0953, .6060]	[-.0055, .1201]
3. Cognitive Ability	—	[-.0013, .0061]	[-.0007, .0281]	[-.0831, .1282]	[-.0652, .0073]
Model 2 Mediator Variables					
1. Motivation to Uphold Hierarchy	[.0691, .1430]	[.0993, .1683]	[.0871, .2059]	[.0819, .9898]	[.0164, .5233]
2. Epistemic Motivation	[-.0107, .0224]	[.0016, .0187]	[-.0028, .0220]	[.0853, .5243]	[-.0095, .1213]
3. Cognitive Ability	—	[-.0010, .0076]	[.0001, .0297]	[-.0815, .1277]	[-.0697, .0092]
4. Explicit Attitude (1)	[-.0045, .0381]	[.0037, .0375]	[-.0060, .0099]	[-.0250, .2328]	[-.0755, .1372]
5. Explicit Attitude (2)	[-.0107, .0414]	[.0073, .0522]	[-.0042, .0298]	[-.3842, -.0015]	[-.0246, .3042]
6. Implicit Attitude	[-.0048, .0198]	[-.0084, .0180]	—	[-.1870, .0150]	[-.0186, .1361]

Note. Explicit Attitude (1) indicates the relative preference item and Explicit Attitude (2) indicates the feeling thermometer.

years, $SD = 14.28$) completed the study through the Project Implicit research pool. As in Study 1, we excluded participants from analyses for having more than 10% of responses on critical trials in the IAT be faster than 300ms (13 participants, 2.21% of the total sample). Study 2’s preregistration can be found at <https://osf.io/8nsep/>.

Procedure. Participants completed a series of measures, described below. The measures were administered in a randomized order, except for the IAT, which was administered last.

Measures. Stereotype endorsement ($\alpha = .64$), political ideology ($M = 3.77$, $SD = 1.81$), the motivation to uphold hierarchy ($\alpha = .86$), explicit racial attitudes, and implicit racial attitudes were assessed in the same manner as in Study 1.

Motivation to deliberate. To assess epistemic motivation, we measured the extent to which participants enjoy engaging in deliberative thought over making quick and rapid judgments. Participants completed the 18-item short form Need for Cognition Scale (Cacioppo, Petty, & Feng Kao, 1984). Sample items include, “I would prefer complex to simple problems,” and “I find satisfaction in deliberating hard and for long hours.” Participants responded using a 1 (*extremely characteristic of me*) to 5 (*extremely uncharacteristic of me*) scale. We created a composite of the items ($\alpha = .88$), such that higher scores indicate a stronger motivation to deliberate.

Cognitive ability. To assess cognitive ability, participants completed an 11-item matrix reasoning task from the International Cognitive Ability Resource (ICAR;

Condon & Revelle, 2014).² In this task, participants are presented with a 3 × 3 array of shapes, with one of the shapes missing. Participants are then provided with six options and are asked to choose the shape that would best complete the pattern of the set, with items increasing in difficulty throughout the task. The ICAR has been extensively validated as a measure of cognitive ability, such as in reliably predicting real-world standardized test performance, grades earned in college, and performance on commercial measures of cognitive ability (Condon & Revelle, 2014; Kirkegaard & Nordbjerg, 2015). We coded incorrect responses as “0” and correct responses as “1”. To create a single score for each participant, we averaged the accuracy of responses across items ($\alpha = .72$).

RESULTS

We again used sequential analysis, preregistering to analyze data after 500 and 650 eligible participants. Results revealed that we could end data collection after 500 eligible participants. In Study 2, the critical p -value for rejecting the null hypothesis was then .034.

Associations Among Ideology, Motivations, and Endorsement of Stereotyping. We first examined the predicted relationships among variables. Zero-order correlations can be found in Table 3. Consistent with predictions, greater conservatism was associated with stronger endorsement of racial stereotyping, a stronger motivation to uphold hierarchy, and lower motivation to deliberate. A stronger motivation to uphold hierarchy, lower motivation to deliberate, and lower cognitive ability were also associated with greater endorsement of racial stereotyping. However, inconsistent with predictions, conservatism was not reliably associated with cognitive ability.

Mediation Model. We next examined whether the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability in part accounted for why conservatism was associated with greater endorsement of racial stereotyping. We conducted a model in which ideology was specified as the exogenous variable; the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability as mediator variables; and stereotype endorsement as the outcome variable (Figure 2 and Table 2). The indirect effects of ideology predicting stereotype endorsement through the motivation to uphold hierarchy and through motivation to deliberate were both significant. However, the b path for the indirect effect through cognitive ability was not significant, and the confidence interval of the indirect effect contained zero, indicating that the indirect effect was nonsignificant. When including explicit and implicit racial attitudes as additional mediator variables, the indirect effects through the motivation to uphold hierarchy and through the motivation to deliberate remained significant. Thus, a stronger motivation to uphold hierarchy and lower motivation to deliberate in part accounted for why greater conservatism was associated with the endorsement of racial stereotyping.

2. ICAR items cannot be posted publicly and so are not available in our online materials. Access to the items can be requested through the ICAR website: <https://icar-project.com/>.

TABLE 3. Correlations Among Variables in Study 2

	1	2	3	4	5	6	7
1. Ideology	—						
2. Stereotype Endorsement	.42	—					
3. Motive to Uphold Hierarchy	.51	.57	—				
4. Motivation to Deliberate	-.14	-.23	-.20	—			
5. Cognitive Ability	-.03 [^]	-.10 [*]	-.08 ⁺	.22	—		
6. Explicit Racial Attitude (1)	.26	.35	.23	-.08 ⁺	-.01 [^]	—	
7. Explicit Racial Attitude (2)	.38	.40	.31	-.18	-.02 [^]	.61	—
8. Implicit Racial Attitude	.27	.21	.20	-.03 [^]	.002 [^]	.28	.23

Note. Explicit Racial Attitude (1) indicates the relative preference item and Explicit Racial Attitude (2) indicates the feeling thermometer.

[^] $p > .10$, ⁺ $p < .10$, ^{*} $p < .032$, No symbol significant at $p < .001$

Adjusting for Ideological Extremity. Ideological extremity was not associated with stereotyping either with ($p = .23$) or without ($p = .19$) conservatism as a covariate. Additionally, conservatism remained significantly associated with stereotyping when adjusting for extremity, $B = .26$, $SE = .02$, $t(564) = 10.84$, $p < .001$, $r_{sp} = .42$.

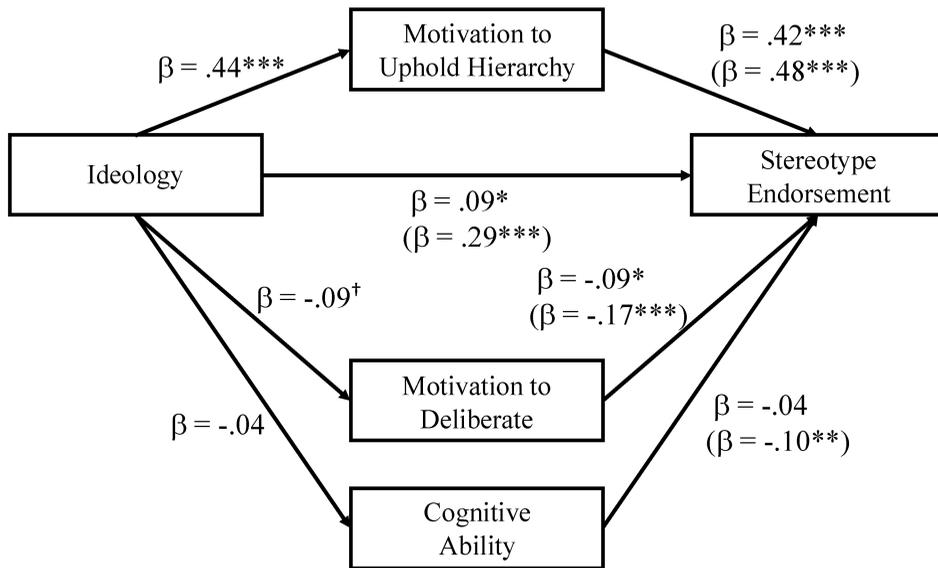
Adjusting for Demographics. We also examined the relationship between conservatism and endorsement of racial stereotyping while adjusting for age, sex (male versus female), and race (White versus non-White). Conservatism remained significantly associated with racial stereotyping, $B = .25$, $SE = .02$, $t(558) = 10.34$, $p < .001$, $r_{sp} = .40$. Additionally, when adjusting for these demographics, the indirect effects of ideology predicting stereotyping through the motivation to uphold hierarchy, 97% CI [.1108, .1862], and through the motivation to deliberate both remained significant, 97% CI [.0035, .0255].

DISCUSSION

The results of Study 2 indicated that conservatives more strongly believed than did liberals that racial stereotyping was a valid means of making judgments. Additionally, the motivation to uphold hierarchy and epistemic motivation to deliberate explained in part why conservatives were more supportive of racial stereotyping. Cognitive ability did not play an explanatory role.

STUDY 3

In Study 3, we advanced beyond the previous studies in two key ways. First, the previous studies examined general support for stereotyping based on a particular social category (i.e., race). In this study, we sought to examine whether



Note. $^\dagger p < .10$, $* p < .032$, $** p < .01$, $*** p < .001$

FIGURE 2. Mediation model in which political ideology predicts stereotype endorsement through the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability (Study 2). Explicit and implicit racial attitudes are included as covariates. Values in parentheses represent direct relationships; values without parentheses represent relationships after including all variables in the model.

conservatives would also be more likely to endorse specific stereotypes about groups. Second, we examined stereotype endorsement about gender to determine whether the relationships observed in the previous studies generalized beyond racial stereotyping.

METHOD

Participants. We targeted a sample of 450 participants, which would provide greater than 99% power for detecting an effect of $r = .30$, and 57% power for detecting an effect of $r = .10$. In total, 432 participants (214 women, 218 men; 344 White, 35 Black, 26 East Asian, 8 South Asian, 3 American Indian, 1 Native Hawaiian, 10 multiracial, 5 “other” races; $M_{\text{age}} = 38.79$ years, $SD = 12.87$) were recruited through MTurk. Nineteen additional participants were excluded from analyses for failing an attention check item. Study 3’s preregistration can be found at <https://osf.io/ravh9/3>

3. We initially intended to collect the participant sample for this study through a Qualtrics panel. However, as data collection from the panel progressed, issues arose concerning the quality of the responses (e.g., more than one-third of participants failed an attention check). Thus, we instead chose to collect the sample for this study from Mechanical Turk. Participants on Mechanical Turk are less likely to fail attention checks, and previous research suggests that this is attributable to more genuine engagement (Berinsky, Huber, & Lenz, 2012; Hauser & Schwarz, 2016).

Procedure. Participants completed a series of measures, described below. The measures were administered in a randomized order.

Gender stereotyping. Participants completed three items from previous research (Zitelny, Shalom, & Bar-Anan, 2017) assessing the extent to which they endorsed gender stereotypes. The items were, "On average, men are more willing than women to spend time away from their families," "On average, men are more willing than women to devote the time required to succeed in 'high-powered' positions," and "On average, men possess a naturally greater scientific interest than do women." Participants responded using a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. We created a composite of the responses ($\alpha = .85$).⁴

Explicit gender attitudes. Participants completed two measures of explicit gender attitudes. The first asked, "Which statement best describes you?" (1 = "I strongly prefer men to women," 4 = "I like men and women equally," 7 = "I strongly prefer women to men"). We reverse-scored this item so that higher values indicated more positive attitudes toward men than women. Next, participants reported their attitudes toward men and women using a feeling thermometer that ranged from 0 (*Not warm at all*) to 100 (*Extremely warm*). We then subtracted attitudes toward women from attitudes toward men. Positive values indicate holding more positive attitudes toward men than toward women.

Cognitive ability. To assess cognitive ability, participants completed a 12-item mental rotation task from ICAR. In this task, participants are presented with a three-dimensional cube and are asked to select which of six other cubes could be a possible rotation of the main cube. Participants are also given the response options that none of the cubes are the correct answer or that they do not know the solution. The items increase in difficulty throughout the task. To create a single score for each participant, we summed the total number of items responded to correctly ($\alpha = .83$).

Additional measures. Political ideology ($M = 3.38$, $SD = 1.83$) and the motivation to deliberate ($\alpha = .94$) were assessed in the same manner as in Study 2. The motivation to uphold hierarchy ($\alpha = .91$) was assessed using the 8-item short form of the Social Dominance Orientation scale (SDO₇; Ho et al., 2015).

4. Study 3 also included items about predicted gender disparities in STEM enrollment and perceived distributions of group characteristics. We decided against including the STEM items in the primary analysis because it is ambiguous whether responses reflected genuine stereotype endorsement versus acknowledgment of structural barriers and possible discrimination. Additionally, we did not include distributions of characteristics in the primary analysis because the assessment more readily gauged perceived group homogeneity than stereotype endorsement (Linville, Fischer, & Salovey, 1989). These items are included in the posted datasets, and the online supplement includes correlations of these items with other Study 3 measures.

RESULTS

As in previous studies, we used sequential analysis and preregistered analyzing data after 450 and 800 eligible participants. Results revealed that we could end data collection after 450. As a result, our critical p -value for rejecting the null hypothesis was .032.

Associations Among Ideology, Motivations, and Stereotype Endorsement. We first examined the predicted relationships among variables. Zero-order correlations can be found in Table 4. Consistent with predictions, greater conservatism was associated with stronger endorsement of gender stereotypes, stronger motivation to uphold hierarchy, marginally lower motivation to deliberate, and lower cognitive ability. A stronger motivation to uphold hierarchy, lower motivation to deliberate, and lower cognitive ability were associated with greater endorsement of gender stereotypes.

Mediation Model. We next examined whether the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability in part accounted for why conservatism was associated with greater gender stereotyping. We conducted a model in which ideology was specified as the exogenous variable; the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability as mediator variables; and stereotype endorsement as the outcome variable (Figure 3 and Table 2). The indirect effect of ideology predicting stereotype endorsement through the motivation to uphold hierarchy was significant, and the indirect effect through cognitive ability was marginally significant, 95% CI [.0003, .0272]. The b path for the indirect effect through the motivation to deliberate was not significant and the confidence interval of the indirect effect contained zero, indicating that the indirect effect was not significant. When including explicit gender attitudes as additional mediators, the indirect effect through the motivation to uphold hierarchy remained significant, and the indirect through cognitive ability became significant. Thus, a stronger motivation to uphold hierarchy and lower cognitive ability in part accounted for why conservatism was associated with greater gender stereotyping.

Adjusting for Ideological Extremity. Ideological extremity was associated with less gender stereotyping ($r = -.10$, $p = .03$), but the relationship became nonsignificant when conservatism was included as a covariate ($p = .99$). Additionally, conservatism remained significantly associated with stereotyping when adjusting for extremity, $B = .34$, $SE = .04$, $t(429) = 7.97$, $p < .001$, $r_{sp} = .36$.

Adjusting for Demographics. We also examined the relationship between conservatism and gender stereotyping while adjusting for age, sex (male versus female), and race (White versus non-White). Conservatism remained significantly associated with stereotyping, $B = .34$, $SE = .04$, $t(427) = 8.03$, $p < .001$, $r_{sp} = .36$. Additionally, when adjusting for these demographics, the indirect effect of ideology predicting stereotyping through the motivation to uphold hierarchy remained

TABLE 4. Correlations Among Variables in Study 3

	1	2	3	4	5	6
1. Ideology	—					
2. Stereotype Endorsement	.37	—				
3. Motive to Uphold Hierarchy	.53	.42	—			
4. Motivation to Deliberate	-.08 [†]	-.12*	-.20	—		
5. Cognitive Ability	-.14**	-.11*	-.03 [^]	.01 [^]	—	
6. Explicit Gender Attitude (1)	.04 [^]	.06 [^]	-.05 [^]	-.01 [^]	-.01 [^]	—
7. Explicit Gender Attitude (2)	.06 [^]	.16	.13**	.08 [^]	.07 [^]	.51

Note. Explicit Gender Attitude (1) indicates the relative preference item and Explicit Gender Attitude (2) indicates the feeling thermometer.

[^] $p > .10$, [†] $p < .10$, * $p < .032$, ** $p < .01$, No symbol significant at $p < .001$

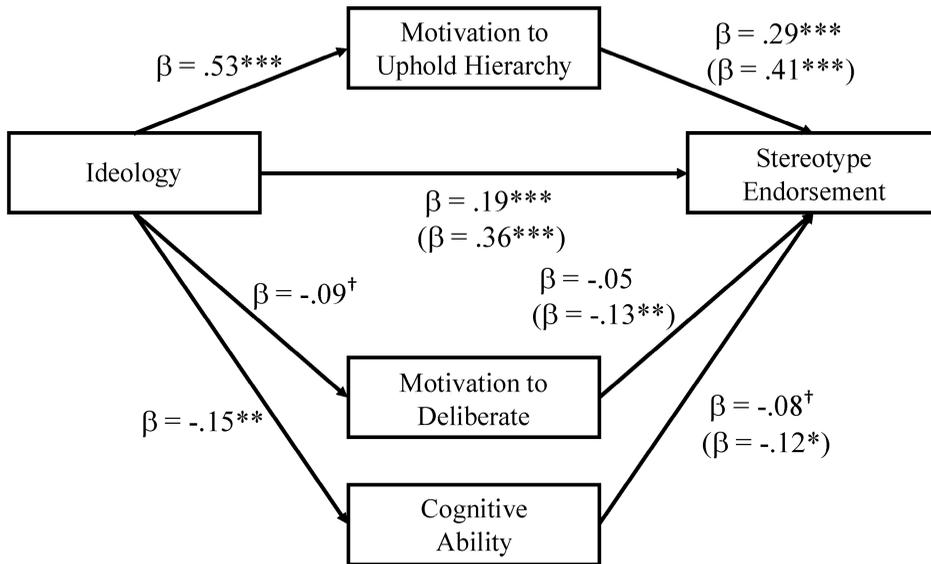
significant, 97% CI [.0890, .2092], and the indirect effect through cognitive ability remained marginally significant, 95% CI [.0003, .0292].

DISCUSSION

In Study 3 we found that conservatives more strongly endorsed gender stereotypes than did liberals. Additionally, stronger motivation to uphold hierarchy and lower cognitive ability explained in part why conservatives were more likely to endorse gender stereotypes. Epistemic motivation to deliberate did not play an explanatory role.

STUDY 4

In Study 4 we sought to conceptually replicate and extend Study 3 in three ways. First, the number of statements used to assess stereotyping in Study 3 was relatively limited. Therefore, in Study 4 we assessed various gender stereotypes corresponding to a broader range of outcomes—behaviors, traits, characteristics, and occupations. Second, the assessment of gender stereotyping in Study 3 was comparative in nature (e.g., asking whether men are *more likely* to do something *than* women). Comparisons between groups can increase the use of stereotypes (Guimond et al., 2006). To ensure that observed relationships are not constrained to this specific measure of stereotyping, in Study 4 we utilized a procedure in which participants separately rated the prevalence of characteristics among men and women. Third, we examined whether ideology would differentially shape the endorsement of stereotypes about women and men separately. Men are perceived as higher status and more politically conservative than women (Brandt & Crawford, 2020; Brandt et al., 2014), which might lead conservatives to temper (or avoid) stereotyping men relative to women. Thus, we examined whether conservatives (versus liberals)



Note. $^{\dagger}p < .10$, $*p < .032$, $**p < .01$, $***p < .001$

FIGURE 3. Mediation model in which political ideology predicts gender stereotype endorsement through the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability (Study 3). Explicit gender attitudes are included as covariates. Values in parentheses represent direct relationships; values without parentheses represent relationships after including all variables in the model.

might be especially more likely to endorse stereotypes about women than about men (or vice-versa).

METHOD

Participants. As in previous studies, we targeted a sample of 450 participants. In total, 463 participants (257 women, 206 men; 344 White, 29 Black, 18 East Asian, 5 South Asian, 3 American Indian, 3 Native Hawaiian, 31 multiracial, 24 “other” races, 6 no race specified; $M_{\text{age}} = 39.74$ years, $SD = 16.59$) were recruited through the Project Implicit research pool. Nine participants had more than 10% of critical trials faster than 300ms (1.91% of the total sample) and were excluded from analyses. Study 4’s preregistration can be found at <https://osf.io/d5ebt/>

Procedure. Participants completed a series of measures, described below. Measures were administered in a randomized order, except for the IAT, which was administered last.

Gender stereotyping. To assess the endorsement of gender stereotypes, we employed a procedure developed in previous research (Deaux & Lewis, 1984;

Haines, Deaux, & Lofaro, 2016). Participants indicated the extent to which men and, separately, women would exhibit or possess 24 different behaviors, traits, characteristics, and occupations. We selected a subset of the items used in Haines and colleagues (2016) to prevent response bias and fatigue given the inclusion of additional measures. We created a set of items using the following criteria: (a) there would be six items from each category (e.g., six behaviors); (b) there would be three masculine items (men rated higher than women in past research) and three feminine items (women rated higher than men in past research) within each category; and (c) the items would vary in the strength of their stereotypicality, based on the effect size of estimated gender differences observed in Haines and colleagues (2016). The full list of items is included in the online supplemental materials. A sample item is, "How likely is it that a man is an automobile mechanic?" Participants indicated responses using a 0 (*extremely unlikely*) to 100 (*extremely likely*) scale. We subtracted ratings of men from ratings of women for feminine items ($\alpha = .86$), and subtracted ratings of women from ratings of men for masculine items ($\alpha = .85$). We computed a composite of these responses to create a single gender stereotyping score for each participant ($\alpha = .90$).

Implicit gender attitudes. To assess implicit gender attitudes, participants completed a seven-block IAT assessing associations between the concepts "Good" and "Bad" and categories "Males" and "Females." Each gender category was represented by six gray-scale images of faces (three male, three female). Positive IAT *D* scores reflected greater association strength between positive and female versus male.

Additional measures. Political ideology ($M = 3.69$, $SD = 1.79$), the motivation to deliberate ($\alpha = .88$), cognitive ability ($\alpha = .83$), and explicit gender attitudes were assessed in the same manner as in Study 3. The motivation to uphold hierarchy ($\alpha = .87$) was assessed in the same manner as in Study 2.

RESULTS

Study 4 used the same sequential analysis approach as Study 1. Results revealed that data collection could be stopped after 450 participants, and the critical *p*-value was .032.

Associations Among Ideology, Motivations, and Stereotype Endorsement. We first examined the predicted relationships among variables. Zero-order correlations can be found in Table 5. Consistent with predictions, greater conservatism was associated with stronger gender stereotyping, stronger motivation to uphold hierarchy, lower motivation to deliberate, and lower cognitive ability. A stronger motivation to uphold hierarchy and lower motivation to deliberate were significantly associated with greater gender stereotyping, and lower cognitive ability was marginally associated with greater gender stereotyping.

TABLE 5. Correlations Among Variables in Study 4

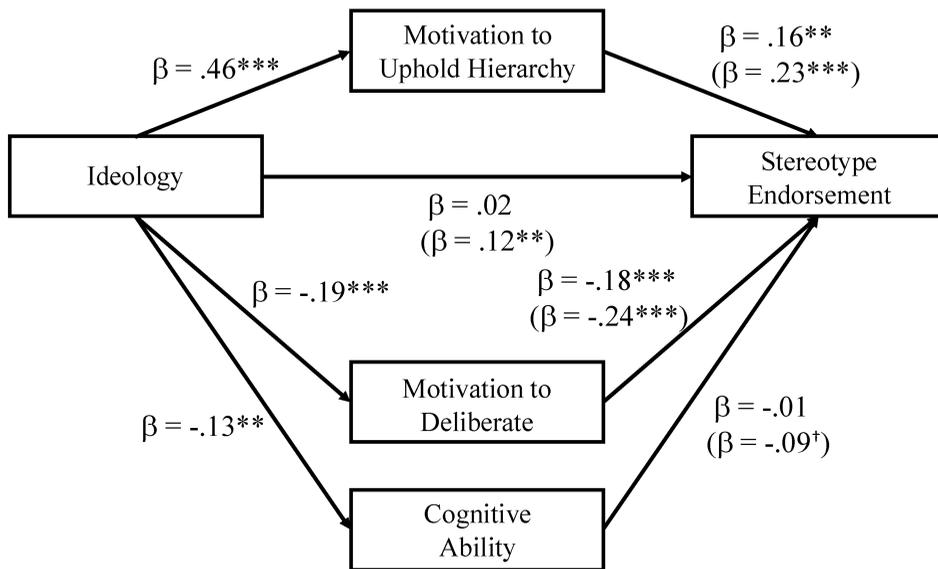
	1	2	3	4	5	6	7	8	9
1. Ideology	—								
2. Stereotype Endorsement Overall	.11*	—							
3. Stereotyping Men	.06 [^]	.92	—						
4. Stereotyping Women	.14**	.89	.65	—					
5. Motivation to Uphold Hierarchy	.46	.21	.19	.18	—				
6. Motivation to Deliberate	-.20	-.25	-.24	-.19	-.33	—			
7. Cognitive Ability	-.13**	-.09 [†]	-.10*	-.05 [^]	-.14	.25	—		
8. Explicit Gender Attitude (1)	.07 [^]	-.02 [^]	.01 [^]	-.04 [^]	-.01 [^]	-.03 [^]	-.10 [†]	—	
9. Explicit Gender Attitude (2)	.09 [†]	-.17	-.12**	-.19	.04 [^]	.02 [^]	-.07 [^]	.51	—
10. Implicit Gender Attitude	-.07 [^]	.05 [^]	.09 [†]	-.005 [^]	-.10*	.02 [^]	-.09 [†]	.27	.14**

Note. Explicit Gender Attitude (1) indicates the relative preference item and Explicit Gender Attitude (2) indicates the feeling thermometer.

[^] $p > .10$, [†] $p < .10$, * $p < .032$, ** $p < .01$, No symbol significant at $p < .001$

Mediation Model. We next examined whether the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability in part accounted for why conservatism predicted greater gender stereotyping. We conducted a model in which ideology was specified as the exogenous variable; the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability as mediator variables; and gender stereotyping as the outcome variable (Figure 4 and Table 2). The indirect effects of ideology predicting stereotype endorsement through the motivation to uphold hierarchy and through motivation to deliberate were both significant. The *b* path for the indirect effect through cognitive ability was not significant and the confidence interval of the indirect effect contained zero, indicating that the indirect effect was not significant. When including explicit and implicit gender attitudes as additional mediators, the indirect effects through the motivation to uphold hierarchy and motivation to deliberate remained significant. Thus, a stronger motivation to uphold hierarchy and lower motivation to deliberate in part accounted for why greater conservatism was associated with stronger gender stereotyping.

Adjusting for Ideological Extremity. Ideological extremity was not associated with gender stereotyping, either with ($p = .74$) or without ($p = .37$) conservatism included as a covariate. Additionally, conservatism remained significantly associated with stereotyping when adjusting for extremity, $B = .81$, $SE = .36$, $t(453) = 2.29$, $p = .02$, $r_{sp} = .11$.



Note. $^{\dagger}p < .10$, $^{**}p < .01$, $^{***}p < .001$

FIGURE 4. Mediation model in which political ideology predicts gender stereotype endorsement through the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability (Study 4). Explicit and implicit gender attitudes are included as covariates. Values in parentheses represent direct relationships; values without parentheses represent relationships after including all variables in the model.

Adjusting for Demographics. We also examined the relationship between conservatism and gender stereotyping while adjusting for age, sex (male versus female), and race (White versus non-White). Conservatism remained significantly associated with stereotyping, $B = .93$, $SE = .34$, $t(441) = 2.72$, $p = .007$, $r_{sp} = .13$. Additionally, when adjusting for these demographics, the indirect effects of ideology predicting gender stereotyping through the motivation to uphold hierarchy, 97% CI [.0164, .9991], and through the motivation to deliberate, 97% CI [.0236, .5457], both remained significant.

Comparing Stereotyping of Men and Women. We next examined whether conservatism was differentially associated with greater stereotyping of women and men (see Table 5). Conservatism was associated with significantly greater stereotyping of women and nonsignificantly trended in the direction of greater stereotyping of men. To examine whether the strength of these correlations was different, we conducted a model using the MIXED procedure in SPSS. We included ideology (grand-mean centered), target group (effect coded as men = 1, women = -1), and their interaction as predictors. Stereotype endorsement was included as the dependent variable. The interaction between ideology and target gender was marginally significant, $B = -.15$, $SE = .08$, $t(454.93) = -1.91$, $p = .06$, 95% CI [-.31, .005],

indicating that ideological differences in stereotyping tended to be stronger in stereotyping of women than men.

We next examined whether stereotyping of men and women was correlated with the predicted mechanism constructs (see Table 5). The motivation to uphold hierarchy was associated with greater stereotyping of both men and women, and the strength of the correlations did not differ ($p = .59$). Greater motivation to deliberate was associated with less stereotyping of both men and women, and the strength of the correlations did not differ ($p = .13$). Cognitive ability was associated with less stereotyping of men and was not associated with stereotyping of women, but the strength of the correlations did not differ ($p = .14$). Because the relationship between conservatism and stereotyping of women was significant, we examined the extent to which the motivation to uphold hierarchy and the motivation to deliberate would contribute to explaining the relationship. The indirect effect of ideology predicting stereotyping of women through the motivation to deliberate was significant, 97% CI [.0236, .2663], but the indirect effect of motivation to uphold hierarchy was not significant, 97% CI [-.0331, .4152].

DISCUSSION

In Study 4 we found that conservatives more strongly endorsed gender stereotypes overall than did liberals. The motivation to uphold hierarchy and epistemic motivation to deliberate explained in part why conservatives more strongly endorsed gender stereotypes. Cognitive ability did not play an explanatory role. Ideological differences were marginally stronger in stereotyping of women than of men. Importantly, however, the motivation to uphold hierarchy and the motivation to deliberate were associated with stereotyping of women and men to a comparable degree, suggesting that similar processes could be associated with stereotyping of higher and lower status groups.

STUDY 5

In Study 5 we conceptually replicated Study 4. We examined whether (and why) conservatives would be more likely to endorse specific racial stereotypes.

METHOD

Participants. We targeted a sample of 800 participants, which would provide 99% power for detecting an effect of $r = .30$, and 81% power for detecting an effect of $r = .10$. A total of 821 participants (572 women, 244 men, 5 no gender specified; 620 White, 74 Black, 16 East Asian, 12 South Asian, 9 American Indian, 4 Native Hawaiian, 61 multiracial, 23 "other" races, 2 no race specified; $M_{\text{age}} = 40.27$ years, $SD = 14.46$) were recruited through the Project Implicit research pool. Twelve participants had more than 10% of critical trials faster than 300ms (1.44% of the total sample) and were excluded from analyses. Study 5's preregistration can be found at <https://osf.io/tvzsm/>

Procedure. Participants completed a series of measures, described below. Measures were administered in a randomized order, except for the IAT, which was administered last.

Racial stereotyping. To assess the endorsement of racial stereotypes, we employed a commonly used procedure (Devine & Elliott, 1995; Madon et al., 2001). Participants indicated the extent to which White people and, separately, Black people would exhibit or possess 16 different stereotypically Black behaviors or traits. These items were drawn from previous research. As with the previous study, we selected a subset of items to prevent response bias and fatigue. The full list of items is included in the online supplemental materials. A sample item is, "How likely is it that a White person sings and dances well?" Participants indicated responses using a 0 (*extremely unlikely*) to 100 (*extremely likely*) scale. We created a composite of responses toward White ($\alpha = .92$) and Black ($\alpha = .94$) individuals. We then subtracted the White stereotyping composite from the Black stereotyping composite to create a single stereotyping score for each participant.

Explicit racial attitudes. Participants completed the same relative explicit racial preference item as in Study 1 ($M = 4.21$, $SD = 0.91$), and they reported their attitudes toward White and Black people separately using the same feeling thermometer procedure as in Study 1. We subtracted attitudes toward Blacks from attitudes toward Whites. Positive values indicate holding more positive attitudes toward Whites than toward Blacks.

Implicit racial attitudes. To assess implicit racial attitudes, participants completed a seven-block IAT, as described in Study 1. Positive IAT D scores reflected greater association strength between positive and European American versus African American.

Additional measures. Political ideology ($M = 3.88$, $SD = 1.81$), the motivation to uphold hierarchy ($\alpha = .85$), the motivation to deliberate ($\alpha = .87$), and cognitive ability ($\alpha = .85$) were assessed in the same manner as in Study 4.

RESULTS

Study 5 used the same sequential analysis approach as Study 1. Results revealed that data collection could be stopped after 800 participants, and the critical p -value was .032.

Associations Among Ideology, Motivations, and Stereotype Endorsement. We first examined the predicted relationships among variables. Zero-order correlations can be found in Table 6. Consistent with predictions, conservatism was associated with greater racial stereotyping, stronger motivation to uphold hierarchy, lower motivation to deliberate, and marginally lower cognitive ability. A stronger

TABLE 6. Correlations Among Variables in Study 5

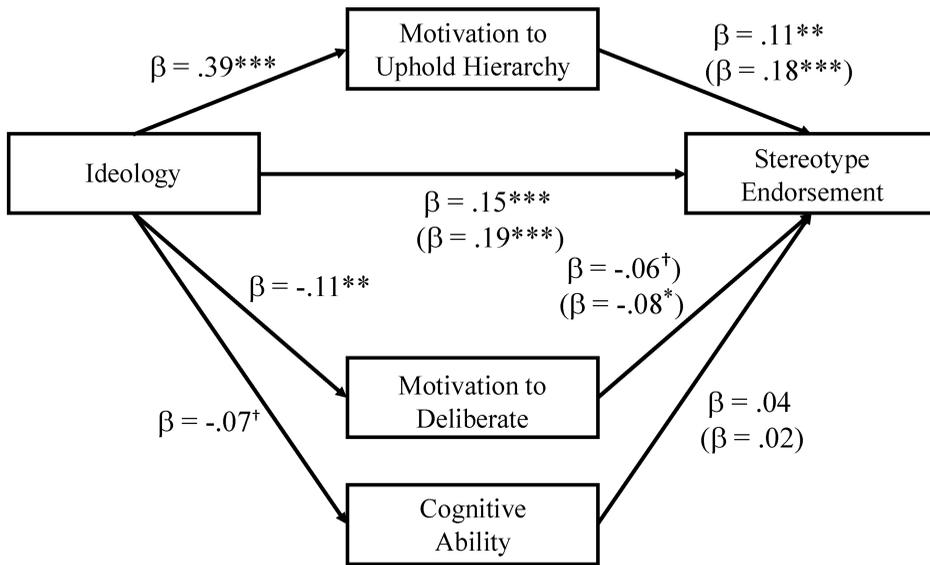
	1	2	3	4	5	6	7	8	9
1. Ideology	—								
2. Stereotype Endorsement	.24	—							
3. Stereotyping of Blacks	.10**	.54	—						
4. Stereotyping of Whites	.09**	.26	-.67	—					
5. Motive to Uphold Hierarchy	.43	.22	.15	.02^	—				
6. Motivation to Deliberate	-.12	-.10**	-.15	.08*	-.14	—			
7. Cognitive Ability	-.07 [†]	.02^	-.07 [†]	.10**	.01^	.15	—		
8. Explicit Racial Attitude (1)	.16	.17	.15	-.03^	.28	-.12	.02^	—	
9. Explicit Racial Attitude (2)	.19	.19	.15	.003^	.26	-.08 [†]	-.04^	.61	—
10. Implicit Racial Attitude	.16	.13	.12	-.02^	.15	-.09*	-.05^	.24	.24

Note. Explicit Racial Attitude (1) indicates the relative preference item and Explicit Racial Attitude (2) indicates the feeling thermometer.

^ $p > .10$, [†] $p < .10$, * $p < .032$, ** $p < .01$, No symbol significant at $p < .001$

motivation to uphold hierarchy and lower motivation to deliberate were significantly associated with greater racial stereotyping. Cognitive ability was not associated with racial stereotyping.

Mediation Model. We next examined whether the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability in part accounted for why conservatism predicted greater racial stereotyping. We conducted a model in which ideology was specified as the exogenous variable; the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability as mediator variables; and racial stereotyping as the outcome variable (Figure 5 and Table 2). The indirect effect of ideology predicting stereotype endorsement through the motivation to uphold hierarchy was significant, and the indirect effect through the motivation to deliberate was marginally significant, 95% CI [.0022, .1172]. The b path for the indirect effect through cognitive ability was not significant and the confidence interval of the indirect effect contained zero, indicating that the indirect effect was not significant. When including explicit and implicit racial attitudes as additional mediators, the indirect effect through the motivation to uphold hierarchy remained significant and the indirect effect through the motivation to deliberate became nonsignificant. Thus, a stronger motivation to uphold hierarchy and lower motivation to deliberate in part accounted for why conservatism predicted stronger racial stereotyping.



Note. $^{\dagger}p < .10$, $*p < .032$, $**p < .01$, $***p < .001$

FIGURE 5. Mediation model in which political ideology predicts racial stereotype endorsement through the motivation to uphold hierarchy, motivation to deliberate, and cognitive ability (Study 5). Explicit and implicit racial attitudes are included as covariates. Values in parentheses represent direct relationships; values without parentheses represent relationships after including all variables in the model.

Adjusting for Ideological Extremity. Ideological extremity was not associated with gender stereotyping, either with ($p = .84$) or without ($p = .33$) conservatism included as a covariate. Additionally, conservatism remained significantly associated with stereotyping when adjusting for extremity, $B = 1.21$, $SE = .18$, $t(799) = 6.79$, $p < .001$, $r_{sp} = .23$.

Adjusting for Demographics. We also examined the relationship between conservatism and racial stereotyping while adjusting for age, sex (male versus female), and race (White versus non-White). Conservatism remained significantly associated with stereotyping, $B = 1.29$, $SE = .18$, $t(787) = 7.28$, $p < .001$, $r_{sp} = .25$. Additionally, when adjusting for these demographics, the indirect effects of ideology predicting stereotyping through the motivation to uphold hierarchy remained significant, 97% CI [.0410, .5651], but the indirect effect through the motivation to deliberate became nonsignificant, 95% CI [-.0131, .1345].

Comparing Stereotyping of Black and White Individuals. We next examined whether conservatism was differentially associated with greater stereotyping of Black and White individuals (see Table 6). In this study, the stereotyping task assessed the ascription of stereotypically Black attributes. As such, we reverse scored the

likelihood ratings of White individuals so that higher scores indicated greater stereotyping for both Black and White targets. Conservatism was associated with significantly greater stereotyping of both Black individuals and White individuals. To examine whether the strength of these correlations was different, we conducted a model using the MIXED procedure in SPSS. We included ideology (grand-mean centered), target race (effect coded as White = 1, Black = -1), and their interaction as predictors. Stereotype endorsement was included as the dependent variable. The interaction between ideology and target race was not significant, $B = -.11$, $SE = .40$, $t(808.82) = -0.27$, $p = .79$, 95% CI [-.89, .68], indicating that the strength of ideological differences in stereotyping did not differ between Black and White target groups.

We next examined whether stereotyping of Black and White individuals was correlated with the predicted mechanism constructs (see Table 6). Greater motivation to uphold hierarchy and lower motivation to deliberate were significantly associated with greater stereotyping of Black individuals, and lower cognitive ability was marginally associated with greater stereotyping of Black individuals. In contrast, greater motivation to deliberate and higher cognitive ability (but not the motivation to uphold hierarchy) were associated with greater stereotyping of White individuals. We examined the extent to which the mechanism variables explained the relationship between conservatism and stereotyping of Black and White individuals. The indirect effects of ideology predicting stereotyping of Black individuals through the motivation to uphold hierarchy, 97% CI [.1057, .6263], and the motivation to deliberate, 97% CI [.0279, .2101], were both significant. Additionally, the indirect effects of ideology predicting stereotyping of White individuals through the motivation to deliberate was significant, 97% CI [-.1320, -.0089]. These findings indicate that conservatives' greater motivation to uphold hierarchy and lower motivation to deliberate in part explained their greater stereotyping of Black individuals, whereas conservatives' lower motivation to deliberate unexpectedly tempered their greater stereotyping of White individuals.

DISCUSSION

In Study 5 we found that conservatives more strongly endorsed racial stereotypes than did liberals. Additionally, the motivation to uphold hierarchy and epistemic motivation explained in part why conservatives more strongly endorsed racial stereotypes. Cognitive ability did not play an explanatory role. Ideological differences also emerged to a comparable degree in stereotyping of Black and White individuals.

Relationships with the mechanism constructs were more complex. Greater motivation to uphold hierarchy and lower motivation to deliberate were associated with more stereotyping of Black individuals, whereas greater motivation to deliberate and higher cognitive ability were associated with more stereotyping of White individuals. One possible reason for these different associations is that we assessed perceptions of the extent to which Black and White individuals possess stereotypically Black attributes, rather than a measure that assessed the degree

to which White individuals possessed stereotypically White attributes. We used this approach because it has been commonly employed in previous research (e.g., Devine & Elliott, 1995; Madon et al., 2001). In this sense, the stereotyping measure differed from that used in Study 4, which assessed the same types of stereotyping for each target group. It is possible that different psychological mechanisms explain why people ascribe stereotypical attributes and why they avoid ascribing counterstereotypical attributes. We return to this point in the general discussion.

META-ANALYSIS

Consistent with recommendations from various researchers (e.g., Goh, Hall, & Rosenthal, 2016; Lakens & Etz, 2017; McShane & Böckenholt, 2017), we conducted an internal meta-analysis of the present studies to obtain estimates of the effect sizes aggregating across all studies. Using procedures outlined by Cooper, Hedges, and Valentine (2009), we calculated a weighted average of correlational effect sizes and tested whether the average effect sizes were significantly different from zero. Weighted meta-analytic correlations can be found in Table 7. To obtain an average effect size for indirect effects in mediation models, we multiplied the standardized effect size of the *a* path (the relationship between ideology and the mediator variable) and the standardized effect size of the *b* path (the relationship between the mediator variable and stereotyping while adjusting for ideology and the other mediator variables; Kenny, 2018), and then took the square root of this value.

Overall, conservatism was associated with greater stereotyping, stronger motivation to uphold hierarchy, lower motivation to deliberate, and lower cognitive ability. A stronger motivation to uphold hierarchy, lower motivation to deliberate, and lower cognitive ability were also significantly associated with greater stereotyping. The average indirect effects of ideology predicting stereotyping through greater motivation to uphold hierarchy, $r = .34$, $SE = .02$, Wald $z = 18.71$, $p < .001$, 95% CI [.31, .38], and through lower motivation to deliberate were both significant, $r = .11$, $SE = .02$, Wald $z = 5.85$, $p < .001$, 95% CI [.07, .15]. The average indirect effect through cognitive ability was not significant, $r = .02$, $SE = .02$, Wald $z = 0.84$, $p = .40$, 95% CI [-.02, .06]. When adjusting for explicit and implicit attitudes, the average indirect effects through the motivation to uphold hierarchy, $r = .32$, $SE = .02$, Wald $z = 16.83$, $p < .001$, 95% CI [.28, .35], and motivation to deliberate, $r = .10$, $SE = .02$, Wald $z = 5.13$, $p < .001$, 95% CI [.06, .14], both remained significant. Thus, greater motivation to uphold hierarchy and lower motivation to deliberate contributed to explaining, in part, why conservatism was associated with greater stereotyping.

GENERAL DISCUSSION

In the present research, we examined whether liberals and conservatives differed in the extent to which they endorsed race and gender stereotypes, and the factors that linked ideology to stereotyping. We found that conservatives were more likely than liberals to endorse stereotyping based on race in a general sense, and were also more likely to endorse specific race and gender stereotypes. Integrating

TABLE 7. Weighted Meta-Analytic Correlations Among Variables

	1	2	3	4	5	6	7
1. Ideology	—						
2. Stereotype Endorsement	.29	—					
3. Motive to Uphold Hierarchy	.46	.38	—				
4. Motivation to Deliberate	-.16	-.17	-.21	—			
5. Cognitive Ability	-.08	-.06**	-.05*	.16	—		
6. Explicit Group Attitude (1)	.17	.18	.16	-.07	-.02 [^]	—	
7. Explicit Group Attitude (2)	.22	.19	.21	-.07	-.02 [^]	.59	—
8. Implicit Group Attitude	.15	.14	.11	-.05 [†]	-.05 [†]	.26	.23

Note. Explicit Group Attitude (1) indicates the relative preference item and Explicit Group Attitude (2) indicates the feeling thermometer.

[^] $p > .10$, [†] $p < .10$, * $p < .032$, ** $p < .01$, No symbol significant at $p < .001$

across studies, greater motivation to uphold hierarchy and lower motivation to deliberate contributed in part to explaining why conservatives were more likely to endorse race and gender stereotypes. Additionally, although ideology was associated with cognitive ability, it did not play a unique role in explaining the relationship between conservatism and stereotyping. Overall, these findings contribute to understanding important differences across people in whether and why they endorse race and gender stereotypes, distinguishing the role of motivation and ability in explaining beliefs, and disentangling ideological differences in prejudice and stereotyping. We discuss each of these points below.

MOTIVATIONAL MECHANISMS LINKING CONSERVATISM TO STEREOTYPING

Here, we found that greater motivation to uphold hierarchy and lower motivation to deliberate in part explained conservatives' greater endorsement of race and gender stereotypes. However, hierarchy-enhancing motives consistently played a stronger explanatory role than did epistemic motives. Why might this be the case? All social categories, to some extent, provide a sense of simplicity and structure to the world (Fiske, 1998; Tajfel, 1981). However, the historical construction of race and gender categories in particular has heavily operated to reinforce social and economic hierarchies (Bem, 1993; Markus, 2008). In other words, stereotypes about race and gender categories hold a strong potential to legitimize inequality and reinforce the current state of affairs. Thus, the motive to enhance hierarchy might play a primary role in explaining ideological differences toward issues involving race and gender, with other motivational differences between liberals and conservatives taking an important but less central role.

When might epistemic motives take a more focal role in explaining ideological differences in stereotyping? Epistemic motives might be more pivotal in shaping stereotype endorsement for categories that do not readily enforce an accessible

hierarchy. For example, political conservatives are more likely than liberals to reinforce stereotypes about novel, experimentally created, social categories (Stern, West, & Rule, 2015), and they are also more likely to detect deviations from stereotypes in non-human categories (Okimoto & Gromet, 2016). Experimentally created social groupings and non-human categories (e.g., shapes) do not exist within important social or economic hierarchies. Nevertheless, they provide a sense of structure and facilitate quick decision-making. Thus, in these contexts, ideological differences in epistemic motivation for order, structure, and predictability might play a more important mechanistic role than motivations to uphold social hierarchy. Directly testing whether epistemic motives play a greater explanatory role when stereotypes are less tied to existing social hierarchies will be an informative path for future research.

It is also important to highlight that epistemic motivations for deliberation could lead to *greater* stereotyping under some conditions (Wegener, Clark, & Petty, 2006). Specifically, when people consider counterstereotypical information, deliberation could operate in the service of maintaining preexisting cognitions about social categories and in turn generate greater stereotyping (Kunda & Oleson, 1995). For example, in Study 5 we observed that greater motivation to deliberate was associated with the rejection of counterstereotypical attributes to White individuals, possibly as a means of maintaining prior ideas about racial categories. Future research could directly examine the complexity of factors linking ideology to the ascription of stereotypical attributes and rejection of counterstereotypical attributes.

DIRECTIONALITY OF CONSERVATISM, PSYCHOLOGICAL MOTIVATIONS, AND ABILITIES

In the present research, we measured rather than manipulated ideology. While we believe that the models we specified are conceptually justifiable, alternative models should be explored. Specifically, ideology could possibly act as a mechanism linking motivational and cognitive factors to stereotyping. To address this possibility, we examined an alternative model in which ideology operated as a mechanism linking the motivation to uphold hierarchy, the motivation to deliberate, and cognitive ability to stereotyping. Descriptively, results indicated that this alternative specification of the model was less able to account for factors that contribute to stereotyping than did our proposed model (see online supplement for full report of analyses and results). Nevertheless, relationships between conservatism and psychological motivations and abilities are likely to possess some degree of bidirectionality over time (Beattie, 2017; Jost & Amodio, 2012). The existence of bidirectional and iterative relationships over time would not necessarily render our model invalid, but instead would indicate the existence of more complex patterns than are known at the current time. To this end, the presumed causal findings of the present research should be interpreted cautiously until future research can examine a more direct causal link between shifts in ideology and stereotyping (e.g., through longitudinal studies). Nevertheless, the present research provides a novel contribution through comprehensively documenting relationships among

ideology, various cognitive and motivational factors, and endorsement of stereotypes about race and gender groups.

DISTINGUISHING MOTIVATION AND ABILITY TO DELIBERATE

Consistent with previous research (e.g., Jost et al., 2018; Onraet et al., 2015), we found that conservatives possessed a lower motivation to deliberate and also displayed slightly lower cognitive ability compared to liberals. Previous research has argued that both epistemic motivation and cognitive ability operate as important factors in understanding the emergence of *prejudice* (Dhont & Hodson, 2014; Roets & Van Hiel, 2011). However, to the extent of our knowledge, no research has systematically examined the role of these constructs in understanding ideological differences in *stereotyping*. We found that epistemic motivation, but not cognitive ability, played a role in explaining liberal-conservative stereotyping differences. In other words, the *motivation* to engage in deliberative thought, rather than the *ability* to do so, in part contributed to why conservatives were more likely to endorse race and gender stereotypes than were liberals.

Previous research has argued that prejudice (i.e., evaluations) and stereotyping (i.e., cognitive associations) reflect unique processes (Amodio & Devine, 2006). Consistent with this perspective, distinct brain systems are involved in producing stereotype endorsement and prejudicial attitudes (Gilbert, Swencionis, & Amodio, 2012). However, little research has systematically compared the motivational and cognitive factors that shape the endorsement of stereotypes and, separately, the construction of prejudicial attitudes. The findings of the present research suggest that it would be informative for future research to further investigate the psychological factors that explain ideological differences in prejudice and stereotyping.

It is important to highlight that the measures of cognitive ability we employed have been validated as objective indices of cognitive ability (Condon & Revelle, 2014). Additionally, previous research has found that the relationship between ideology and cognitive ability does not systematically vary across measures or domains of cognitive ability (Onraet et al., 2015). Nevertheless, cognitive ability is multifaceted and could be assessed in different domains (e.g., fluid reasoning, general knowledge, memory). Although these domains do not appear to vary in their relation to ideology, they might differentially shape whether people update beliefs about groups. Memory systems in particular might be most strongly implicated in the formation and updating of stereotypical associations (Amodio & Ratner, 2011). For example, exposure to counterstereotypical exemplars (e.g., a female construction worker) changes people's mental representation of a group and the extent to which they perceive trait variation in a group (Dasgupta & Greenwald, 2001). This process necessitates both holding the counterstereotypical example in working memory and subsequently storing it in long-term memory. Thus, ideological differences in long- and short-term memory might play a more direct role in predicting stereotype endorsement. Future research could examine this possibility.

GROUP GENERALIZATION AND DISENTANGLING PREJUDICE AND STEREOTYPING

We examined the endorsement of stereotypes about race and gender because they have received the most attention in the literature and because there are well-designed and validated items that can be used to examine stereotyping toward racial and gender groups. Further, previous research has indicated that people, regardless of their own group membership, perceive Black (versus White) individuals and women (versus men) as being lower (versus higher) in status (Kahn, Ho, Sidanius, & Pratto, 2009; Levin, 2004). Thus, our selection of groups ensured that we would systematically build on and contribute to existing literature.

Our findings contribute to debates concerning the role of ideology in intergroup outcomes. Specifically, recent research derived from the *ideological conflict hypothesis* has found that liberals and conservatives display symmetrical patterns of intolerance and prejudice toward groups that are perceived as holding ideologies inconsistent with their own (e.g., Brandt et al., 2014). Consistent with this argument, we found in Studies 4–5 that conservatism was associated with more negative attitudes toward groups perceived as liberal (women and African Americans; average $r = -.06$, $z = -2.26$, $p = .02$) and more positive attitude toward those perceived as conservative (men and Whites; average $r = .08$, $z = 2.90$, $p = .004$). However, we also found that conservatism was associated with the endorsement of cultural stereotypes about groups that are typically perceived as more liberal (average $r = .12$, $z = 4.11$, $p < .001$) and as more conservative (average $r = .08$, $z = 2.91$, $p = .004$), although ideological differences were slightly stronger in stereotyping of groups perceived to be liberal. In other words, conservatives expressed greater prejudice toward lower status groups and less prejudice toward higher status groups but engaged in greater stereotyping of *both* lower higher and lower status groups. However, a salient question concerns whether the present findings would generalize to stereotyping of groups beyond race and gender. We anticipate that similar patterns of stereotyping would emerge when groups within a social category are clearly distinguished based on status, as race and gender groups are (Kahn et al., 2009; Levin, 2004). Nevertheless, it would be generative for future research to examine whether comparable patterns emerge for other forms of group membership (e.g., social class, disability status).

How do we reconcile the different patterns of stereotyping and prejudice? As noted above, prejudice and stereotyping reflect distinct processes. Psychologists have also argued that prejudice and stereotyping diverge in their function based on valence (Allport, 1954; Dovidio, Glick, & Rudman, 2008). Positive attitudes provide social support and advantage to groups, whereas negative (prejudicial) attitudes foster social hostility and disadvantage. In contrast, both “positive” stereotypes (e.g., women are warm) and “negative” stereotypes (e.g., women are unintelligent) can serve the function of reinforcing hierarchy and preserving predictability (Czopp et al., 2015). This divergence is further highlighted by mixed findings concerning the size and direction of the relationship between prejudice and stereotyping (Stephan et al., 1994). In other words, patterns of prejudice do not necessarily

correspond to patterns of stereotyping. Similarly, in Studies 4–5 we also found that the motivation to uphold hierarchy was related to stereotyping and prejudice in distinct ways. Specifically, the motivation to uphold hierarchy was associated with greater prejudice toward lower status groups (average $r = -.21$, $z = -7.41$, $p < .001$) and was not associated with prejudice toward higher status groups (average $r = -.04$, $z = -1.50$, $p = .14$). However, the motivation to uphold hierarchy was associated with greater stereotyping of *both* lower status (average $r = .16$, $z = 5.82$, $p < .001$) and higher status groups (average $r = .08$, $z = 2.88$, $p = .004$).

Overall, we do not possess a theoretical reason to anticipate that the perceived status or ideology of a group would strongly modulate the extent to which conservatives (versus liberals) endorse cultural stereotypes about that group. Nevertheless, directly investigating this question would shed important light on the factors that shape ideological differences in stereotyping.

CONCLUSION

In the present research, we found that conservatism was associated with stronger endorsement of stereotypes about racial and gender groups. We additionally found that conservatives' stronger motivation to uphold hierarchy and, separately, lower motivation to deliberate in part explained this relationship. These findings contribute to intergroup relations research through highlighting a characteristic of individuals that is not tied to any particular racial or gender group, yet modulates beliefs about these groups. This work also provides insight into how basic psychological motivations can impact why liberals and conservatives commonly fail to see eye-to-eye about the world and the groups that inhabit it.

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