The Essence of Innocence: Consequences of Dehumanizing Black Children

Phillip Atiba Goff and Matthew Christian Jackson
The University of California, Los Angeles

Brooke Allison Lewis Di Leone
National Center for Post-Traumatic Stress Disorder, Boston, Massachusetts

Carmen Marie Culotta
The Pennsylvania State University

Natalie Ann DiTomasso
The University of Pennsylvania

The social category "children" defines a group of individuals who are perceived to be distinct, with essential characteristics including innocence and the need for protection (Haslam, Rothschild, & Ernst, 2000). The present research examined whether Black boys are given the protections of childhood equally to their peers. We tested 3 hypotheses: (a) that Black boys are seen as less "childlike" than their White peers, (b) that the characteristics associated with childhood will be applied less when thinking specifically about Black boys relative to White boys, and (c) that these trends would be exacerbated in contexts where Black males are dehumanized by associating them (implicitly) with apes (Goff, Eberhardt, Williams, & Jackson, 2008). We expected, derivative of these 3 principal hypotheses, that individuals would perceive Black boys as being more responsible for their actions and as being more appropriate targets for police violence. We find support for these hypotheses across 4 studies using laboratory, field, and translational (mixed laboratory/field) methods. We find converging evidence that Black boys are seen as older and less innocent and that they prompt a less essential conception of childhood than do their White same-age peers. Further, our findings demonstrate that the Black/ape association predicted actual racial disparities in police violence toward children. These data represent the first attitude/behavior matching of its kind in a policing context. Taken together, this research suggests that dehumanization is a uniquely dangerous intergroup attitude, that intergroup perception of children is underexplored, and that both topics should be research priorities.

Keywords: dehumanization, racial discrimination, police bias, intergroup processes, juvenile justice

The most important question in the world is, "Why is the child crying?"
—Alice Walker

Families, laws, and cultures try to protect children from the harshest realities adults face (Ariès, 1965; Lampinen & Sexton-Radek, 2010). It is troubling, therefore, to learn about contexts in which children experience harsh realities similar to those experienced by adults. In the U.S. criminal justice system, for example, thousands of children are sent to adult correctional facilities every year (Redding, 2010), and to chilling effect. Relative to peers sent to juvenile facilities, children who are sentenced as adults are twice as likely to be assaulted by a correctional officer, five times as likely to be sexually assaulted, and eight times as likely to commit suicide (Poe-Yamagata & Jones, 2007; Young & Gainsborough, 2000). These outcomes are particularly worrisome for Black children, who are 18 times more likely than White children to be sentenced as adults and who represent 58% of children sentenced to adult facilities (Poe-Yamagata & Jones, 2007). Given the near universal protection society attempts to afford children, why are Black children so vulnerable to being treated like adults?

When Black adults are treated more harshly than Whites, research often confirms that racial bias, explicit or implicit, is at least partially responsible (Dovidio, 2001). But racial prejudice has not previously been linked to treating individuals as if they are older than they are. In fact, racially disparate treatment of children has rarely been studied by social psychologists, and, when it has been, racial prejudice was not linked to estimations of maturity (Graham

& Lowery, 2004; Rattan, Levine, Dweck & Eberhardt, 2012). What, then, might be an alternate explanation for the treatment of Black children as adults? In previous research, Harris and Fiske (2006) found evidence that members of dehumanized groups can receive fewer basic social considerations. As the perception of innocence is a central protection afforded to children (e.g., Giroux, 2000; Hendrick, 2003; Kitzinger, 2003), it follows that this social consideration may not be given to the children of dehumanized groups, such as Black Americans (Goff, Thomas, & Jackson, 2008), in equal measure as they are given to their peers. In the context of criminal justice, such dehumanization could explain some of the racial disparities in sentencing and even the disparate use of force by officers. This article, therefore, examines the possibility that the protections of childhood are diminished for Black children in contexts where they are dehumanized.

Dehumanization Versus Prejudice

Previous research suggests that, in contexts where individuals are dehumanized (defined as the "denial of full humanness to others;" Haslam, 2006, p. 252), social protections from violence can be removed or reduced—even when that dehumanization is not paired with explicit prejudice (Goff, Eberhardt, Williams, & Jackson, 2008). Consequently, in this article, we explore the possibility that, if human childhood affords strong protections against harsh, adult-like treatment, then in contexts where children are dehumanized, those children can be treated with adult severity.

This is consistent with previous formulations of dehumanization and infrahumanization, sometimes referred to as "a lesser form of dehumanization" (Castano & Giner-Sorolla, 2006, p. 805). These formulations assert that traditional prejudice and dehumanization take distinct routes to discrimination and predict distinct outcomes (Eyssel & Ribas, 2012; Leyens et al., 2000, 2001). Several researchers have argued in particular that dehumanization is distinct from prejudice because prejudice is a broad intergroup attitude whereas dehumanization is the route to moral exclusion, the denial of basic human protections to a group or group member (Opotow, 1990; Powell, 2012; Staub, 1989).

This conception of prejudice and dehumanization would predict that, whereas prejudice may prompt one to devalue a job candidate from a disliked group (e.g., Dovidio & Gaertner, 2000), prejudice would not predict endorsement of genocide or extreme violence toward that individual or group (Staub, 1989, 1990, 2000). Dehumanization, on the other hand, would. Consequently, although prejudice toward Black children might result in negative academic evaluations and social exclusion (Farkas, 2003; Lareau & Horvat, 1999; Skiba, Trachok, Chung, Baker, & Hughes, 2012), dehumanization of Black children might conflict with perceptions of children as needing protection. In other words, children may be afforded fewer basic protections in contexts where they are dehumanized, making them vulnerable to harsh treatment usually reserved for adults.

In this context, dehumanization serves to change the meaning of the category "children." Individuals tend to understand "children" as an essential category (i.e., biologically innate, stable, discrete, and natural), the principal characteristics of which are age (i.e., young) and innocence (Giroux, 2000; Haslam, Rothschild, & Ernst, 2000; Hendrick, 2003; Kitzinger, 2003).

Because dehumanization involves the denial of full humanness to others (Haslam, 2006), one would expect a reduction of social considerations afforded to humans for those who are dehumanized. This reduction violates one defining characteristic of children—being innocent and thus needing protection—rendering the category "children" less essential and distinct from "adults." This may also cause individuals to see Black children as more like adults or, more precisely, to see them as older than they are. As a result, dehumanization may reduce prohibitions against targeting children for harsh or adult treatment (Rattan et al., 2012). The present research tests the hypothesis that contexts where Black children are dehumanized reduce the human protections given to those children in two ways: making them seem older and decreasing the perception of "children" as essential—each rendering them less innocent and more vulnerable to harsh, adult-like treatment.

A History of Dehumanization

Historians of genocide often argue that dehumanization is a necessary precondition for culturally and/or state-sanctioned violence (Frederickson, 2002; Jahoda, 1999; Santa Ana, 2002)—a view echoed by some social psychological theorists (Opotow, 1990; Staub, 1989). The logic of this assertion is that dehumanizing groups morally excludes them (Opotow, 1990), making it permissible to treat people in a way that would be morally objectionable if they were fully human. U.S. history is replete with examples of this kind of moral exclusion of Black children. For instance, the policies of chattel slavery (mostly pertaining to peoples of African descent) permitted children to be separated from their parents and forced into labor at any age (Guttman, 1976). In 1944, a Black 14-year-old, George Junius Stinney Jr., became the youngest person on record in the United States to be legally executed by the state (electrocuted without the benefit of a lawyer, witnesses, or a record of confession; Jones, 2007). And, notoriously, in 1955, a 14-year-old Black boy named Emmett Till was dragged from his bed, disfigured, and lynched for allegedly whistling at a White woman (Crowe, 2003). What psychological context could explain this treatment of children? Again, there is reason to believe it may be contexts that provoke dehumanization.

A growing literature demonstrates that individuals tend to associate out-groups and out-group members with nonhuman animals more than they do members of their in-group (Boccato, Capozza, Falvo, & Durante, 2008; Capozza, Boccato, Andrighetto, & Falvo, 2009; Haslam, 2006; Loughnan & Haslam, 2007; Saminaden, Loughnan, & Haslam, 2010). More to the point, research by Goff and colleagues supports the hypothesized link between dehumanization and sanctioned violence (Goff et al., 2008). In this research, White participants who were subliminally exposed to images of apes before watching a video of police beating a Black man were more likely to endorse that beating, despite the extremity of the violence. Participants did not, however, endorse the same beating when the suspect was White or when they had not been primed with the ape image. In a follow-up study, Goff et al. coded newspaper articles about death-eligible criminal cases in Philadelphia for ape-related metaphors. They found that the frequency of ape-related imagery predicted whether or not criminals were executed by the state. Of importance, in neither study was racial prejudice (explicit or implicit) a significant predictor. That is, dehumanization uniquely predicted violence and its endorsement.

The Specific Historical Connection Between Blacks and Apes

Although a general association between a group and "animals" is one form of dehumanization, there are reasons to believe that some animals are more strongly associated with some groups than others. For instance, Jews were frequently represented as vermin (particularly rodents) during the Holocaust of World War II (Jahoda, 1999). Similarly, in the context of United States immigration, Latinos are frequently referred to with insect-related language, such as "hordes of immigrants" that "scurry over the border," "infecting" U.S. culture (Santa Ana, 2002). Likewise, there is a long tradition of peoples of African descent being likened to nonhuman primates—what the philosopher Lott (1999) referred to as the "Negro/Ape metaphor."

This dehumanizing representation can still be found in depictions of soccer players of African descent, especially in Europe (Jones, 2002; Thompson, 2013), and of the first Black president of the United States (Apel, 2009). Consequently, the research conducted by Goff, Eberhardt, et al. (2008) tested the strength of an association between Blacks and great apes (e.g., gorillas, chimpanzees) in contrast to that between Blacks and big cats (e.g., lions, tigers, cheetahs). This research found that, though big cats were seen as more violent, more negative, and more strongly associated with Africa than were great apes, the Black/ape association predicted violence. This finding suggests that the strong historical association between Blacks and apes specifically—and not Blacks with simply any animal—may still influence the unique ways in which individuals dehumanize Blacks. Consequently, the present research uses the same methods as this previous work (Goff, Eberhardt, et al., 2008) to investigate the reduction in protections afforded to Black children when they are dehumanized.

Dehumanization at the Margins: Adolescence and Felonies

The transition from childhood to adulthood is gradual, resulting in most societies seeing adolescence as an indeterminate mix of adult and childlike qualities (Burton, Obeidallah, & Allison, 1996; Johnson, Berg, & Sirotzki, 2007). This ambiguity is even reflected in the views of the American Psychological Association (APA) on how children should be treated within the criminal justice system. For instance, in its amicus brief in *Roper v. Simmons* (2005), the APA argued in favor of abolishing the death penalty for children under 18, describing children as developmentally immature and less culpable for their actions. Conversely, in its amicus brief in *Hodgson v. Minnesota* (1990), the APA argued that children are mature enough to make the decision to have an abortion without parental consent. Most researchers have reconciled these viewpoints by postulating that children have developed the ability to make deliberate, unhurried decisions (such as medical decisions) but do not yet have fully developed the psychosocial skills needed for impulse control (key to avoiding criminal liability and violence; Spear 2000; Steinberg, 2008; Steinberg, Cauffman, Woolard, Graham, & Banich, 2009; Steinberg & Scott, 2003). Given the intermediate position of adolescence between childhood and adulthood and the prediction that the protections of childhood would be reduced for a particular group of children in contexts where that group is dehumanized, it follows that dehumanization

would be particularly consequential for adolescents, as those protections may already be waning. Recent research by Rattan et al. (2012) supports this conception of adolescence. In that research, participants perceived Black adolescent offenders as more deserving of adult treatment than an identical White adolescent offender, providing evidence for racial bias in the perceptions of juvenile offenders and for the labile nature of adolescence as a category.

Additionally, any context that provokes consideration of a child as an adult should be particularly susceptible to the effects of dehumanization. Within a juvenile justice context, then, felony cases may be particularly precarious because the serious nature of felonies allows prosecutors to raise the question of whether or not the suspect should be tried as an adult. Misdemeanors, on the other hand, do not. Consequently, a child felony suspect is most at risk of being misperceived as an adult because of her or his intermediate developmental stage and the severity of her or his offense. Therefore, we expected that perceptions of child felony suspects would be more affected by dehumanization than would perceptions of misdemeanor or younger suspects.

Overview of Studies

The present work tested the hypothesis that Black children enjoy fewer of the basic human protections afforded to their peers because the category "children" is seen to be a less essential category (specifically, less distinct from adults) when it is applied to Black children, particularly in contexts where Black children are dehumanized. We also expected that Black children would be seen as less innocent as well as older than their other-race peers. We expected that when children are seen as less distinct from adults, they would also receive fewer protections in both laboratory and field settings. Additionally, this could ultimately result in increased violence toward them relative to their peers in criminal justice contexts. Finally, we expected that the presence of dehumanization, and not traditional prejudice, would moderate each of these relationships. We expected in particular that the dehumanizing implicit association between Blacks and apes found in prior research (see Goff et al., 2008) would predict reductions in seeing "children" as an essential category when applied to Blacks and, thus, also predict age overestimations of Black children and decreases in perceptions of Black children's innocence.

Because several of our studies involved measuring perceptions in a criminal justice context and because boys are disproportionately represented in the juvenile justice system (71% of children arrested are boys Snyder, 2005), we chose to focus on male Black children in the portions of the present research examining criminal contexts, using them as targets in Studies 2, 3a, and 3b. We designed Study 1 to test whether Black children are afforded the privilege of innocence less than children of other races. Studies 2, 3a, and 3b utilize undergraduate and police populations to test the hypothesis that the presence of anti-Black dehumanization facilitates the perception of Black male children as both older than their age and less innocent than their peers. Of importance, Studies 3a and 3b seek to demonstrate these relationships in the domain of encounters with police, with actual police use of force toward children being used as the dependent variable of interest to test our third hypothesis. Finally, Study 4 tests three of our predictions in a single study by examining whether, first, the category "children" is less essentialized for Black male children than for White male

children; second, this difference is exacerbated when Black children are dehumanized; and, third, essentialism mediates the relationship between dehumanization and harmful perceptions of Black male children.

Support for these hypotheses would represent an extension of previous research on intergroup conflict by demonstrating that dehumanization not only reduces the inhibitions against out-group violence (Goff et al., 2008) but also decreases other basic human protections, specifically the affordance of innocence to children (in age, responsibility, and essence). This, in turn, would provide evidence for the conceptual distinction between prejudice and dehumanization. Although these predictions are a logical extension of previous theorizing, social psychological research has yet to examine the role dehumanization might play in the perceptions of children or to contrast that effect with the effects of traditional racial prejudice. Consequently, the present research represents the first attempt to establish a unique contribution of dehumanization to the perceptions and treatment of children. It also represents an expansion of the ways in which essentialism may influence intergroup interactions, as the consequences of essentialized notions of age across groups have not yet been studied. Finally, because the present research uses field data to test our hypotheses regarding violence toward Black male children, it represents a translation of theoretical work on dehumanization and essentialism into the worlds where they are most consequential.

Study 1

In order to test our foundational premise, we simply asked participants about the innocence of children. Participants answered questions about how innocent children were in general (i.e., without specifying race) and how innocent White and Black children were.

Method

Participants. One hundred twenty-three students from a large public university participated in this study in exchange for course credit. Ninety-six percent (128) were female. The median age of participants was 19. When asked to report racial demographics, 111 responded "White," four responded "Black," and eight responded "other."

Design. Participants were randomly assigned to one of three between-subjects conditions. They were asked to report the perceived innocence of White children, Black children, or children generally (i.e., without race specified). To avoid ceiling effects, where the youngest children (i.e., newborns and toddlers) might invariably be seen as innocent, each survey asked participants to rate individuals within six age subgroups, ranging from birth to young adulthood: 0–4, 5–9, 10–13, 14–17, 18–21, and 22–25. Ratings of innocence were measured with a novel scale and served as the dependent variable. We predicted that participants would rate Black children as less innocent than White children and children whose race was unspecified, particularly for older targets.

Materials

Innocence scale. We constructed a scale to measure innocence after pretesting revealed seven characteristics that were highly associated with innocence in our subject population. Each characteristic was presented as an item in our seven-item scale,

including "How much do ___ (e.g., 10- to 13-year olds) need protection?"; "How much do ___ need care?"; "How well can ___ care for themselves?" (reverse coded); "How much are ___ a danger to others?" (reverse coded); "How much are ___ a danger to themselves?" (reverse coded); "How cute are ___?"; and "How innocent are ___?"

Participants were prompted to respond to the set of seven questions for each of the six age subgroups within their assigned race. For example, a participant assigned to rate Black children was asked, "How much do Black 0- to 4-year-olds need protection?" Alternatively, a participant assigned to the race neutral condition was asked, "How much do 0- to 4-year-olds need protection?" The six age subgroups were presented in one of four randomized orders. Further, the administration of these four orders was counterbalanced across conditions. The innocence scale was acceptably reliable ($\alpha = .65$).

Procedure. Participants completed the seven-item innocence scale for each of the six age categories within their assigned racial group (White, Black, or race not specified).

Results

Analyses compared the perceived innocence of children of different races for each age group and aggregated across age ranges. We compared the overall ratings of innocence between races by conducting independent samples t tests on the average score for each participant,[1] meaning their general ratings of all target age ranges. Blacks were seen as less innocent than Whites and people generally. (See Table 1 for comparisons and significance at every age group and in the aggregate.) Further, for every age group after the age of 9 (i.e., 10–13 through 22–25), Black children and adults were rated as significantly less innocent than White children and adults or children and adults generally. Our analyses revealed no differences in ratings of innocence between Whites and people generally, either within an age group or overall.

Discussion

Study 1 provides evidence that children may not be given the privilege of innocence equally across race. From ages 0–9, children were seen as equally innocent regardless of race. However, perceptions of innocence began to diverge at age 10. At this point, participants began to think of Black children as significantly less innocent than other children at every age group, beginning at the age of 10. Interestingly, after the age of 10, the perceived innocence of Black children is equal to or less than the perceived innocence of non-Black children in the next oldest cohort. In other words, the perceived innocence of Black children age 10–13 was equivalent to that of non-Black children age 14–17, and the perceived innocence of Black children age 14–17 was equivalent to that of non-Black adults age 18–21. This provides preliminary evidence that Black children are more likely to be seen as similar to adults prematurely. What might be the consequences of this innocence gap in criminal justice contexts, where perceiving someone as not innocent has the most severe consequences?

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[1] Using a Bonferroni correction for all t tests.

Table 1

Ratings of Innocence for White Children, Black Children, and Children Without Race Specified

Age range	White	Black	Race unspecified
0–4	6.19 (.56)	6.15 (.45)	6.05 (.42)
5–9	5.31 (.63)	5.38 (.60)	5.30 (.57)
10–13	4.50 (.68)***	3.31 (.59)	4.39 (.61)***
14–17	3.33 (.71)*	2.99 (.71)	3.42 (.61)**
18–21	2.91 (.83)**	2.33 (.81)	2.74 (.83)*
22–25	2.77 (.85)***	2.03 (.86)	2.61 (.91)**
Aggregated	3.97 (.56)***	3.57 (.54)	4.08 (.52)***

Note. Age is in years. Data in parentheses are standard deviations.
* $p < .05$ (Significantly different from ratings of Black children. There are no differences between White and children whose race was not specified.)
** $p < .01$. *** $p < .001$.

Study 2

In Study 2 participants were asked to make evaluations within a criminal justice context, examining whether perceptions of innocence differed by target race and the severity of crimes committed. Because we were interested in testing whether being perceived as less innocent was unique to Black children (as opposed to outgroups in general), participants also rated Latino children. Latinos, similar to Blacks, are stereotyped as criminal and violent (Levy, Stroessner, & Dweck, 1998). If racial differences in the perceived innocence of children are due to stereotypical associations with crime or simply due to in-group bias, we should see similar perceptions of innocence for Black and Latino male children. However, if anti-Black dehumanization (i.e., a Black/ape association) facilitates racial differences in perceptions of innocence, we would expect Black male children to be uniquely perceived as less innocent.

In addition to determining whether Black children are perceived as less innocent than other children, we seek to test the hypothesis that contexts of Black dehumanization facilitate this racial disparity. Following evidence in Study 1 that the perceived innocence of Black children was similar to perceptions of older non-Blacks, Study 2 was also designed to test whether participants would overestimate the ages of Black children and whether dehumanization of Blacks predicts age overestimations. We expected, consistent with other investigations of severe intergroup conflict (Goff et al., 2008), that dehumanization would predict racial differences in age estimations but measures of racial prejudice would not. Consequently, Study 2 included measures of both explicit and implicit racial prejudice.

Finally, we predicted racial differences in perceived innocence and age accuracy would be especially pronounced when Black children were suspected of felonies (as opposed to misdemeanors), because felonies are the crimes that make children eligible for adult punishments in the justice system. As opposed to relatively benign misdemeanors that can more easily be rationalized as youthful indiscretions, felonies are more likely to motivate consideration of attributing adult culpability for one's actions, as reflected by the availability of adult sentencing in the juvenile justice system.

Method

Participants. Fifty-nine students from a large public university participated in this study in exchange for course credit. Fifty-eight percent (34) were female. The median age of participants was 19. When asked to report racial demographics, 53 responded "White," one responded "Black," two responded "Latino," and four responded "other."

Design. Participants were randomly assigned to a 2 (crime type: misdemeanor vs. felony) × 3 (race of target: White vs. Black vs. Latino) mixed-model design, with crime type as a within-subjects factor. As in Study 1, participants were assigned to assess males from a single racial group.

Materials

Age assessment task. Because Study 1 found that racial differences in assessments of innocence emerged beginning at age 10, participants were shown pictures of young males from one of three races (White vs. Black vs. Latino) age 10–17.[2] There were eight pictures of children age 10–17. Pictures were matched on attractiveness and racial stereotypicality within age ranges. Participants saw each picture on a separate sheet of paper, and each picture was paired with the description of crime type (either a misdemeanor or a felony, described in greater detail below). Participants were asked to estimate the age of the child—ostensibly a criminal suspect—in each picture. The actual age of each target was subtracted from the participants' age assessment. This score represented age overestimation. For each race of target, an average age overestimation score was created for misdemeanor suspects and felony suspects both within age ranges and overall.

Culpability scale. A novel culpability scale assessed participant's perceptions of each suspect's innocence in this criminal context. This scale consisted of four questions: "How responsible is he for his own actions?" "How much can he care for himself?" "How likely is he to persist in these negative behaviors?" and "How likely is it that he did NOT intend the negative consequences of his actions?" Participants responded to the set of four questions for each of the eight targets within their assigned race. This scale was designed to measure the perceived innocence of a child within a criminal justice context as opposed to abstract notions of innocence, and it had an acceptable reliability ($\alpha = .71$).

The Attitudes Towards Blacks Scale. This questionnaire (ATB Scale; Brigham, 1993) is a widely used assessment of explicit anti-Black prejudice. The questionnaire consists of 20 statements such as, "It is likely that Blacks will bring violence to neighborhoods when they move in."

Personalized Implicit Association Task. To test the possibility that omnibus implicit anti-Black attitudes predict reduced perceptions of Black innocence, we instructed participants to take the personalized Implicit Association Task (IAT; Olson & Fazio, 2004), a modified version of the original IAT (Greenwald, McGhee, & Schwartz, 1998). This task required participants to categorize stereotypically Black and White first names as Black or White and to categorize words that could be either positive or negative for a given respondent (i.e., *peanuts*) as good or bad. The

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[2] Though we no longer include the youngest age groups from Study 1, we maintain our reference to the total set of the target population as children. As such, we maintain the appropriate distinction from adults, while using a set of stimuli that are plausible as potential criminal suspects.

task is intended to measure whether participants are faster at categorization when Black names are paired with disliked items, as opposed to liked items, on the response instrument. Such response time disparities are interpreted as implicit negative attitudes. The names and words for the personalized IAT were taken from Olson and Fazio (2004).

Dehumanization IAT. Similar to the personalized IAT, the dehumanization IAT (Goff, Eberhardt, et al., 2008) is designed to capture a form of implicit bias against Blacks. The dehumanization IAT consists of Black/White, ape/great cat response key pairings. The choice of contrasting great cats with apes, again, reflects previous research that revealed great cats to be rated as more violent, more associated with Africa, and less liked by most individuals—minimizing the possibilities that a Black/ape association is due to associations between Blacks and violence, Africa, or general negativity (Goff et al., 2008). The human and animal names for the dehumanization IAT were taken from previous research (Goff, Eberhardt, et al., 2008).

Procedure. Participants were asked to respond to eight scenarios, each related to a different suspect. Four scenarios were matched with pictures of young males from each age of childhood where significant differences in innocence were found in Study 1 (i.e., 10–17). Of the eight scenarios, four described misdemeanors and four described felonies.

The misdemeanor crimes included cruelty to animals, possession of drug paraphernalia, malicious destruction of property, shoplifting, possession of stolen property, and making unspecified threats. The felony crimes included arson, breaking and entering, aggravated assault, intent to distribute narcotics, rape, and armed carjacking. To maximize realism, we paired offenders with age-appropriate crimes, such that we did not have 10-year-olds accused of rape or armed carjacking. An example of a scenario where a Black male is suspected of a misdemeanor is "*Kishawn Thompkins was arrested and charged with cruelty to animals. He attempted to*

drown a neighborhood cat in his backyard." After seeing a picture of a target paired with one of the scenarios, participants completed age and culpability assessments for that target. After these assessments were made, participants completed the ATB Scale, the personalized IAT, and the dehumanization IAT (the order of IATs was randomized).

We predicted that our predominantly White subject population would overestimate the age of Black criminal suspects relative to that of White and Latino suspects. We also predicted that participants would rate Black criminal suspects as more culpable (i.e., lacking in innocence) relative to White and Latino suspects. Finally, we hypothesized that implicit dehumanization, but neither explicit nor implicit anti-Black prejudice, would predict these racial differences.

Results

All patterns of data were consistent across ages, allowing us to collapse the data across age.

Age assessment. The actual age of the target from each scenario was subtracted from the participants' age assessment to create an age error score. Thus, positive numbers indicate age overestimations and negative numbers indicate age underestimations. To test for racial differences in age errors, we conducted a 2 (crime type: misdemeanor vs. felony) $\times$ 3 (race of children: White vs. Black vs. Latino) repeated measures analysis of variance (ANOVA), with crime type as the repeated measure variable.

This analysis revealed the anticipated two-way interaction, $F(2, 56) = 4.30, p < .05, \eta^2 = .13$ (see Figure 1A). Simple effects tests revealed that participants overestimated the age of Black felony suspects ($M = 4.53, SD = 4.05$) to a greater degree than that of Black misdemeanor suspects ($M = 2.19, SD = 2.90$), $F(1, 56) = 10.35, p < .005, \eta^2 = .23$. There was no difference in age errors between White suspects ($M_{\text{felony}} = 2.57, SD = 1.79; M_{\text{misdemeanor}} = 2.78,$

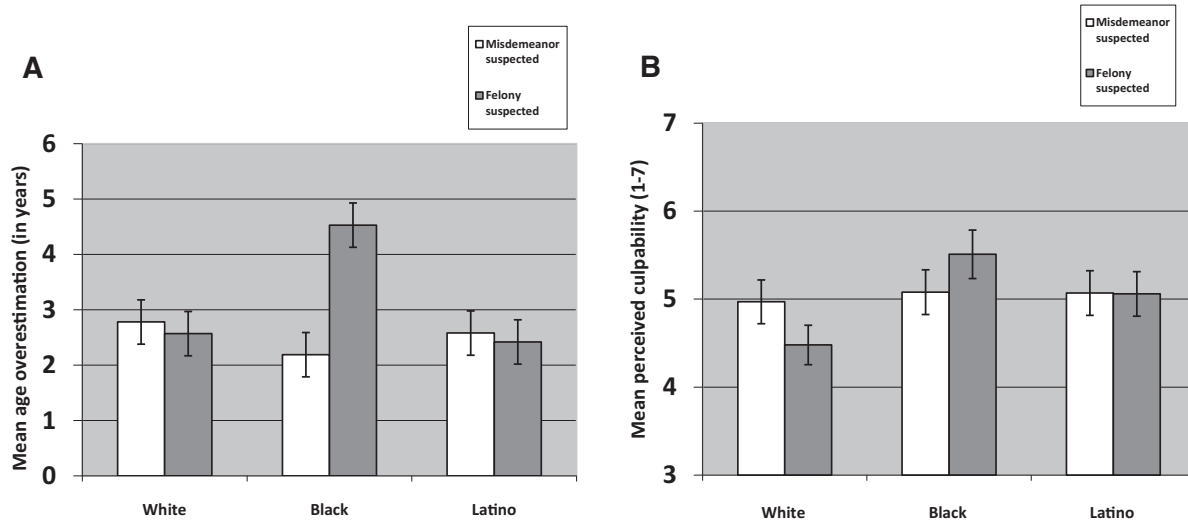
Figure 1. A: Participants' average age estimation accuracy for child suspects of different races (Study 2). B: Participants' average culpability rating for child suspects of different races (Study 2). Error bars represent standard errors.

$SD = 2.27$), nor between Latino suspects ($M_{\text{felony}} = 2.42$, $SD = 2.11$; $M_{\text{misdemeanor}} = 2.58$, $SD = 2.63$). Simple effects tests also revealed that participants rated Black felony suspects as older than White felony suspects, $F(1, 56) = 7.08$, $p < .01$, or Latino felony suspects, $F(1, 56) = 8.44$, $p = .005$, but revealed no such effects for misdemeanor suspects ($Fs < 1$).

Culpability. The culpability scale was acceptably reliable ($\alpha = .65$). To test for racial differences in perceived culpability, we conducted a 2 (crime type: misdemeanor vs. felony) $\times$ 3 (race of children: White vs. Black vs. Latino) repeated measures ANOVA, with crime type as a repeated measure variable and race of target as a between-subjects variable.

This analysis revealed a main effect of race, $F(2, 56) = 4.57$, $p = .01$, $\eta^2 = .14$. Blacks were rated as more culpable than Latinos, and Latinos were rated as more culpable than Whites (see Figure 1B). This effect was qualified by the predicted interaction, $F(2, 56) = 17.17$, $p < .005$, $\eta^2 = .38$. Simple effects tests revealed that White targets were rated as less culpable when associated with felonies ($M_{\text{felony}} = 4.48$, $SD = 1.05$; $M_{\text{misdemeanor}} = 4.97$, $SD = 0.68$), $F(1, 56) = 18.93$, $p < .001$, $\eta^2 = .18$, whereas Black targets were perceived to be more culpable when associated with felonies ($M_{\text{felony}} = 5.51$, $SD = 0.45$; $M_{\text{misdemeanor}} = 5.08$, $SD = 0.54$), $F(1, 56) = 15.35$, $p < .001$, $\eta^2 = .17$. There was no difference in culpability for Latinos across crime type. Simple effects tests also revealed that Black felony suspects were viewed as significantly more culpable than either White felony suspects, $F(1, 56) = 85.30$, $p < .001$, or Latino felony suspects, $F(1, 56) = 17.05$, $p < .001$. No simple effects between target races approached significance for misdemeanor suspects ($Fs < 1$).

Age assessment and culpability. Again, we reasoned that there were two perceptual changes that might result from decreasing the protections of innocence afforded to Black children: by viewing them as older than they are (and relative to their peers) and by viewing them as more culpable/less innocent than their peers. However, it was not clear whether these outcomes were independent outcomes or were related. It would not be surprising if greater perceptions of culpability resulted in greater perceptions of age or vice versa. Consequently, we tested the relationship between respondents' age errors and their ratings of culpability. A simple correlation found that age errors were moderately related to ratings of culpability such that the older a child was rated, the more culpable the child was seen to be, $r(58) = .28$, $p < .05$.

Dehumanization IAT. Because we measured dehumanization after our manipulations (and because our manipulations affected implicit dehumanization scores),[3] we did not formally test the presence of dehumanization as moderating variable. However, the dehumanization IAT significantly predicted age overestimations of Black children. The more readily participants implicitly associated Blacks with apes, the higher their age overestimation for both Black misdemeanor suspects, $r(19) = .66$, $p < .005$, and Black felony suspects, $r(19) = .75$, $p < .001$. Similarly, the dehumanization IAT significantly predicted perceptions of the culpability of Black children. The more readily participants implicitly associated Blacks with apes, the higher their culpability ratings for both Black misdemeanor suspects, $r(19) = .57$, $p < .01$, and felony suspects, $r(19) = .51$, $p < .05$.

Anti-Black dehumanization did not predict age overestimations or assessments of culpability for Latino targets, $rs(19) < .23$, ns; nor did they predict age estimations for White targets, $rs(18) <$

.11, ns. Implicit anti-Black dehumanization did, however, predict ratings of White culpability, $rs(18) < -.50$, $ps < .05$. In other words, the more participants associated apes with Blacks, the less they found White targets culpable for criminal misdeeds. Of course, with small numbers of observations, it is important to be cautious in our interpretations of these correlational data. Because participants saw pictures from only one of each racial group, we could not test whether or not dehumanization predicted differences between Black, White, and Latino targets within a particular individual.

Measures of prejudice. There were no differences in responses to the ATB ($\alpha = .82$) nor in responses to the personalized IAT, across conditions, $F(2, 56) < 1$. Further, these measures were not correlated with any other measures ($rs < .2$, ns). Again, this means that measures of prejudice could not be responsible for racial differences in age assessments or culpability.

Discussion

Study 2 aimed to build on the evidence from Study 1 that children of all races may not be afforded the privilege of innocence equally. Participants overestimated the age of Black targets and deemed Black targets more culpable for their actions than White or Latino targets, particularly when those targets were accused of serious crimes. The magnitude of this overestimation also bears repeating. Because Black felony suspects were seen as 4.53 years older than they actually were, this would mean that boys would be misperceived as legal adults at roughly the age of 13 and a half.

This racial disparity appears to be related to implicit dehumanization of Blacks. The more participants implicitly associated Blacks and apes, the greater the age overestimation and perceived culpability of Black children. It is important to note that Latinos were rated neither as more culpable nor as older than Whites and that (not surprisingly) anti-Black dehumanization did not predict either measure of innocence for Latino targets. This suggests that our findings do not represent a general out-group perceptual phenomenon. Rather, the implicit dehumanization of Blacks appears to be related to unique effects on the perception of Black male children. To test the possibility that the dehumanization of Black children predicts worse outcomes in the criminal justice system, we next turned to police officers, a subject population directly responsible for criminal justice outcomes of children.

Study 3a

Does implicit dehumanization facilitate racial disparities in the perception of child suspects in real-world policing contexts, as it does in undergraduate populations? Previous research has argued that it is important to examine a population that has actual experience with child offenders when conducting research on criminal justice outcomes (i.e., Steinberg & Scott, 2003). Consequently, we administered measures of implicit dehumanization and racial prej-

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[3] The implicit dehumanization of Blacks was higher after participants evaluated Black suspects relative to non-Black suspects, $F(2, 56) = 3.98$, $p < .05$, $\eta^2 = .12$. The D score was higher for Blacks ($M = .50$, $SD = .46$) than for the next highest group, Whites ($M = .15$, $SD = .37$), $t(37) = 2.56$, $p < .05$. However, exploring the causes of dehumanization is beyond the scope of this paper. Here we were interested in the predictive power of dehumanization.

udice to sworn police officers. We then compared these measures with career officer performance, exploring whether implicit dehumanization—and not racial bias—predicted racially disparate treatment of children outside of the laboratory. A replication of Study 2 within a police population, showing that the dehumanization of Black children predicts worse outcomes in the criminal justice system, would provide evidence that observed racial disparities in age overestimations and assessments of innocence are not simply due to inexperience with Black children, as might be the case in an undergraduate population. Independently, we sought to investigate our hypothesis that the presence of dehumanization would facilitate negative outcomes for children, as evidenced by age overestimations and racially disparate use of force against Black male children.

Method

Participants. Sixty police officers from a large urban police department (e.g., policing a population of more than 250,000 people) participated in this study in exchange for $50. The sample was 7% (4) female, with a median age of 38, and a median time on the police force of 6.5 years. Forty-four self-identified as "White," six responded "Black," eight responded "Latino," and two responded "other." Officers were recruited during roll call at the beginning of their shift and participated either after their shift was completed or on a separate day when off duty.

Design. Participants were randomly assigned to a 2 (crime type: misdemeanor vs. felony) × 3 (race: White vs. Black vs. Latino) mixed model design, with crime type as a within-subjects factor.

As in Study 2, age and culpability assessments served as the dependent variables. Measures of implicit and explicit prejudice were included to test their relationship to policing outcomes.[4]

Materials. The crime scenarios, ATB Scale, dehumanization IAT, personalized IAT, age assessment task, and culpability scale were identical to those used in Study 2.

Procedure. The protocol of Study 3a was a modified version of the Study 2 protocol. Participants completed the ATB Scale, the personalized IAT, and the dehumanization IAT. Then, participants were presented with 12 scenarios depicting male targets of a given race (White, Black, or Latino, based on condition) as criminal suspects. Finally, participants completed age and culpability assessments for each target.

After testing officers, the police department's Internal Affairs Bureau worked with researchers to link individual officer psychological data to data contained in that officer's personnel files. We used a double-blind coding technique in order to maintain participant confidentiality. Data gathered from personnel files included use of force history throughout the officer's career. "Use of force" incidents were rated in terms of level of severity taken from police academy training (and confirmed by pretesting with officers in the partner law enforcement agency). Severity levels range from verbal warnings (not included in the analysis), to a takedown/wrist lock, to kicking/punching with a closed fist, to striking with a blunt object, to the use of a police dog, to the use of restraints/hobbling the suspect, to use of a chemical agent (e.g., Mace), to use of a Taser, to use of deadly force (i.e., discharging a firearm or employing a carotid choke hold).[5]

Officers in this department are required to complete a use of force report every time physical contact has been made with a resident. All use of force records are required to contain the geographic location; the time of day; whether or not the suspect was impaired by drugs, alcohol, or mental illness; whether the suspect had a weapon; suspect age; as well as the officer's height and weight. These were entered into our data set for use as covariates. We predicted that dehumanization would predict racial disparities in the amount of force used against Black children (boys and girls), controlling for the covariates listed above.

We predicted a replication of Study 2, such that participants would overestimate the age of Black male children relative to White and Latino children. Similarly, we predicted that participants would rate Black targets as more culpable (i.e., lacking in innocence) than White and Latino suspects. We hypothesized that these racial differences would be predicted by implicit dehumanization. Further, we hypothesized that these racial differences would predict the disproportionate use of actual force against Black children during an officer's career.

Analytic strategy. To analyze these data, we added weights to each incident an officer had with a child under the age of 18 (boys and girls). Each incident was multiplied by a number representing its severity, using the highest level of force applied during the incident for categorization purposes. Consequently, we multiplied wrist locks by 1, punching by 2, and so on, up to 8 for the use of deadly force. This conversion resulted in a weighted score of total use of force incidents for each officer. We then created subscores for each suspect race.

To test for potential anti-Black bias, we computed difference scores (weighted use of force against Black minors minus use of force against all other minors) for each officer. It was not possible to compute ratios, because many officers had used force against only one racial group of minors; consequently, we used difference scores rather than attempt to divide by zero. Finally, because these weighted difference scores were skewed in their distribution, we performed a square root transformation on positive difference scores and a square root transformation on the absolute value of negative difference scores, then returning them to negative values.

Results

Again, all patterns of data were consistent across ages, allowing us to collapse data across them. Most officers had never used force against a child under the age of 18 (32 out of 60).

Age assessment. To test for racial differences in age estimation errors, we conducted a 2 (crime type: misdemeanor vs. felony) × 3 (race of children: White vs. Black vs. Latino) repeated

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[4] Officers completed other measures that are theoretically unrelated to the current paper. Therefore, we do not discuss these measures here.

[5] It is important to mention that the use of K9 police dogs is considered a tactical decision (i.e., the officer has to call and request command staff approval for the use of a K9 unit). In addition, distance weapons (such as Tasers) are often deployed more readily than seemingly less severe tactics (i.e., wrist locks), due to the ability to deploy them without approaching a dangerous suspect. However, these rankings correspond roughly to several "use of force continuums" that other large urban departments use, and the training staff at the department from which data were collected affirmed that these weightings correspond to the "use of force levels of severity" that are taught at this department's training academy and during continuing training.

measures ANOVA, with crime type as the repeated measure variable.

This analysis revealed a main effect of race that was qualified by the predicted two-way interaction, $F(2, 57) = 8.25, p < .001$ (see Figure 2A). Simple effects tests reveal that participants overestimated the age of Black felony suspects ($M = 4.59, SD = 4.73$) to a greater degree than that of Black misdemeanor suspects ($M = 2.46, SD = 2.16$), $F(1, 57) = 10.80, p < .005$, as well as all other suspects. There were no differences in age overestimations between Latino felony suspects ($M = 2.27, SD = 1.64$) and Latino misdemeanor suspects ($M = 3.10, SD = 1.70$), $F < 2, ns$. Similarly, there were no differences in age overestimations between White felony suspects ($M = -0.86, SD = 3.67$) and White misdemeanor suspects ($M = 0.41, SD = 2.69$), $F < 1$. Simple effects tests also revealed that White felony suspects were rated as significantly younger than both Black felony suspects, $F(1, 57) = 73.98, p < .001$, and Latino felony suspects, $F(1, 57) = 24.10, p < .001$. Black felony suspects were also rated as older than Latino felony suspects, $F(1, 57) = 12.09, p = .001$. White misdemeanor suspects were also rated as younger than both Black misdemeanor suspects, $F(1, 57) = 10.44, p < .005$, and Latino misdemeanor suspects, $F(1, 57) = 17.05, p < .001$. Black and Latino misdemeanor suspects, however, did not differ in age ratings ($F < 1$).

Culpability. Again, the culpability scale had acceptable reliability ($\alpha = .77$). To test for racial differences in perceived culpability, we conducted a 2 (crime type: misdemeanor vs. felony) × 3 (race of children: White vs. Black vs. Latino) repeated measures ANOVA, with crime type as the repeated measure variable.

This analysis revealed the predicted interaction, $F(2, 57) = 7.53, p = .001$ (see Figure 2B). Simple effects tests revealed that White targets were rated as less culpable when associated with felonies, $F(1, 57) = 7.45, p < .01$, whereas Black targets were rated as significantly more culpable when associated with felonies, $F(1, 57) = 7.55, p < .01$. There was no difference in culpability for Latinos across crime type.

Simple effects tests also revealed a significant difference between White targets suspected of felonies and both Black targets, $F(1, 57) = 19.38, p < .001$, and Latino targets, $F(1, 57) = 10.47, p < .005$. No differences emerged between Black and Latino felony suspects ($F = 1.04, ns$) or between any misdemeanor suspects ($Fs \leq 1.81, ns$).

Age assessment and culpability. Again, we tested the relationship between participant age errors and ratings of targets' culpability. Here, again, we observed a moderately strong relationship between age errors and ratings of culpability such that the older an officer thought a child was, the more culpable that child was rated for their suspected crime, $r(59) = .46, p < .001$. This, again, suggests the dangers to children of being perceived as older than they are.

Dehumanization IAT. To test for an interaction of between-subjects variables, suspect race and subject dehumanization score, and the within-subjects variable, crime type, on both age estimation errors and ratings of culpability, we followed established methods for testing interactions including within-subjects variables (Judd, Kenny, & McClelland, 2001). We calculated the difference between the age assessment and culpability scores for targets suspected of felonies and targets suspected of misdemeanors. We then entered these variables into separate regression analyses with mean-centered dehumanization scores and target race as predictors. The crime type × target race × dehumanization of Blacks interaction was not a statistically significant predictor of age assessments ($\beta = .21, p = .31$). Considering the magnitude of the β statistic, it may be the case that our small sample size prevented the ability to statistically confirm this effect. Conversely, the crime type × target race × dehumanization of Blacks interaction was a statistically significant predictor of culpability assessments ($\beta = .51, p < .01$), as is consistent with our hypothesis of dehumanization as a moderator.

Given our concerns about lack of power contributing to our inability to find an interaction for age assessment above, we chose
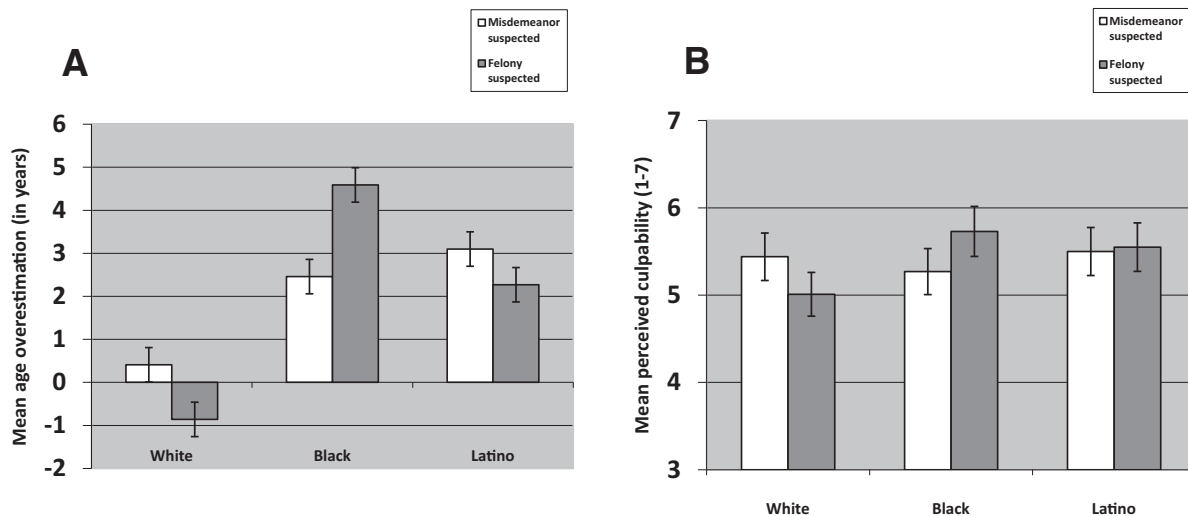

Figure 2. A: Officers' average age estimation accuracy for child suspects of different races (Study 3a). B: Officers' average culpability rating for child suspects of different races (Study 3a). Error bars represent standard errors.

to examine whether the dehumanization IAT predicted both age overestimations and perceived culpability of Black children in particular. Though it is important to be cautious of overinterpreting correlations from relatively small samples, the more quickly participants associated Blacks with apes, the higher was their age overestimation for both Black misdemeanor suspects, $r(19) = .87$, $p < .001$, and Black felony suspects, $r(19) = .84$, $p < .001$. Similarly, the dehumanization IAT significantly predicted perceptions of the culpability of Black children. The more readily participants implicitly associated Blacks with apes, the higher were their culpability ratings for both Black misdemeanor suspects, $r(19) = .72, p < .001$, and Black felony suspects, $r(19) = .81, p < .001$. As in Study 2, implicit anti-Black dehumanization was unrelated to perceptions of Latinos' age or culpability, $rs(16) < .2$, ns. However, perceptions of White targets' age were related to implicit anti-Black dehumanization, $rs (21) < -.70$, $ps < .001$. It was also related to perceptions of White suspects culpability for felony, $r(21) = -.53$, $p = .01$, but not misdemeanor cases, $r(21) < .1$, ns.

Officer performance data. The overall mean weighted use of force score was 5.1 ($SD = 12.20$, $median = 0$). To test for potential anti-Black bias, we computed transformed difference scores (weighted use of force against Black minors minus use of force against all other minors) for each officer. This resulted in unskewed data that ranged from -5.1 to 7.62 with a mean of .26 ($SD = 2.09$, $median = 0$). Of importance, in officer performance, anti-Black dehumanization scores predicted racial disparities in police use of force.

We conducted a regression analysis with scores on the dehumanization IAT as the predictor variable and racial disparity in use of force (measured via the transformed weighted use of force difference scores) as the dependent variable.[6] We included several covariates in the analysis, including scores on the personalized IAT; scores on the ATB Scale; the total number of use of force incidents per officer; the neighborhood where the officer was assigned; the total number of use of force incidents the officer reported during daytime shifts (i.e., 6 a.m.–2 p.m.), evening shifts (i.e., 2 p.m.–10 p.m.), and nighttime shifts (i.e., 10 p.m.–6 a.m.); the total number of suspects who were impaired by alcohol; the total number of suspects who were impaired by drugs; the total number of suspects who were impaired by mental illness the total number of suspects who resisted arrest physically; officer gender; and officer ethnicity.

Our analyses indicated that the implicit dehumanization of Blacks was a significant predictor of racial disparities in the use of force against child suspects ($\beta = .41$, $t = 3.39$, $p = .001$, $R^2 = .17$), even controlling for other measures of bias (ATB Scale: $\beta = .03$, ns; personalized IAT: $\beta = 0$, ns). Again, the more officers implicitly associated Blacks with apes, the more officers had used force against Black children relative to children of other races. Further, controlling for responses to the ATB Scale and personalized IAT, the use of force difference score correlated with age overestimations and with perceptions of culpability, though only for participants who saw Black suspects, all $rs(15) \geq .60, ps < .01$.

Measures of prejudice. There were no differences in responses to the ATB Scale ($\alpha = .78$), nor in responses to the personalized IAT, across conditions. Further, these measures were not correlated with any of the principal dependent variables.

Discussion

Study 3a aimed to replicate the findings of Study 2 in a population—police officers—whose judgments are consequential to experiences of children in the criminal justice system. In this study, participants, despite being better versed in dealing with criminal suspects, overestimated the age of Black and Latino child crime suspects. White children, on the other hand, were not subjected to such overestimations. Again, the magnitude of the Black felony age overestimation bears repeating, as Black 13-year-olds were miscategorized as adults by police officers (average age error = 4.59).

Unlike Study 2, this study adds the ability to test within-subject racial differences. Whereas participants rated children of only one race in Study 2, here we were able to link our attitude measures to disparities in use of force toward citizens of different races. Consequently, Study 3a provides evidence that anti-Black dehumanization predicts racially disparate treatment of Black children in contexts where measures of racial bias do not. Rather, we have provided evidence that the representations of Blacks as less than human continue to cause contemporary harms in the lives of Black children. This is an important step in understanding racial disparities in the criminal justice system. Further, these data provide a rare look into the psychological processes of officer behavior.

The observed associations between dehumanization and violent outcomes for Black children provide further support for our hypothesis that Black children, in contexts of dehumanization, are prematurely treated as adults. Again, the implicit dehumanization of Black children predicted the extent to which police officers overestimate the age of Black suspects, how culpable those Black suspects are perceived to be, and the extent to which officers were more likely to use force on Black suspects than suspects of other races throughout their career, controlling for how much suspects resist arrest or are located in high-crime areas. It is important to highlight that these racial disparities were not predicted by traditional measures of explicit or implicit racial prejudice. Instead, these disparities may be a result of exposure to dehumanizing representations of Blacks. These findings are of particular interest because the subject population is one that is empowered to affect the lives of children. This finding is consistent with previous work documenting that Black children are disproportionately treated like adults in sentencing (Poe-Yamagata & Jones, 2007; Young & Gainsborough, 2000). However, after Study 3a, we were cautious of overgeneralizing from a sample of 60 officers, only 28 of whom had used force against children. Study 3b, therefore, sought to replicate the field component of Study 3a with a larger sample.

Study 3b

Study 3b sought to replicate the real-world findings of Study 3a with a larger sample and without the possible confounding effects of the age-assessment task. We again sampled from police officers and explored the relationship between dehumanization and police behavior.

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[6] Computing difference scores regarding Latino children did not reveal racially disparate use of force toward Latino children.

Method

Participants.   One hundred sixteen police officers from a large urban police department participated in this study in exchange for $50. Five percent of the officers (6) were female. The median age of participants was 37. When asked to report racial demographics, 82 responded "White," 9 responded "Black," 10 responded "Latino," 5 responded "other," and 10 did not respond. Officers were from the pool assigned to patrol duty and were recruited during roll call at the beginning of their shift, participating when off duty.

Design.   Participants completed a battery of psychological tests including the ATB Scale, the personalized IAT, and the dehumanization IAT. After testing officers, we paired individual officer personnel data with their psychological testing data as in Study 3a.

Materials

Measures of prejudice, dehumanization, and use of force.
Participants completed the ATB Scale ($\alpha = .87$), the personalized IAT, and the dehumanization IAT as in studies above. Use of force was calculated as in Study 3a.

Procedure.   Participants completed a battery of survey questions and implicit measures. As we did in Study 3a, we then obtained the personnel records of participating officers to examine the relationship between attitudes (explicit and implicit) and use of force against Black children.

Results

Use of force weighting procedures were identical to those employed in Study 3a. This resulted in unskewed data that ranged from -3.18 to 8.00 with a mean of .14 ($SD = 1.49, median = 0$). Most officers (53%) had not used force against anyone under the age of 18 during their careers. The mean weighted use of force score for all races of suspects was 3.80 ($SD = 9.16, median = 0$). Weighted scores ranged from 0 to 58. Officers' mean weighted use of force score against White suspects was 0.59 ($SD = 1.88$). For Latino suspects, it was 0.62 ($SD = 2.28$). For Black suspects it was 2.18 ($SD = 8.71$; see Figure 3).

As in Study 3a, we conducted a regression analysis with scores on the dehumanization IAT as the predictor variable and the weighted use of force difference scores as the dependent variable. The covariates in Study 3b were the same as those in Study 3a. Our
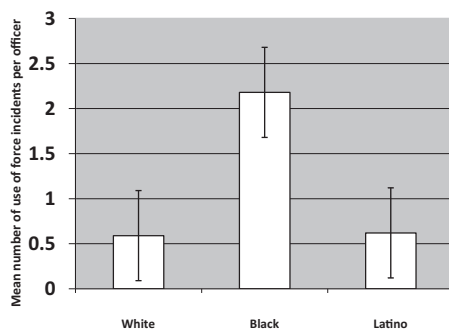
Figure 3.   Officers' average weighted use of force against suspects under 18 (Study 3b). Error bars represent standard errors.

analyses indicated that the implicit dehumanization of Blacks was a significant predictor of racial disparities in the use of force against children, controlling for the aforementioned contextual variables ($\beta = .57, t = 6.13, p < .001, R^2 = .57$). The more officers implicitly associated Blacks with apes, the more frequently they had used force against Black children relative to children of other races throughout their career. Of the covariates, only the use of drugs by suspects ($\beta = .37, t = 1.94, p = .06$) and mental impairments ($\beta = -.17, t = 2.01, p = .05$) were also related to racial disparities in the use of force against children. That is, higher rates of drug use and lower rates of mental illness among the residents an officer encountered predicted higher rates of racial disparities in officers' use of force. Of importance, none of the traditional measures of prejudice, either explicit ($\beta = .11, p = .18$) or implicit ($\beta = .28, p = .21$), predicted the disproportionate use of force against Black children.

Discussion

The results of Study 3b provide further evidence that the implicit dehumanization of Blacks is related to Black children's disproportionate (as compared to their White peers) experiences of violent encounters with police officers.

Having established in Studies 1–3 that Black male children are seen as less innocent than their peers, that they are perceived as older, and that their greater dehumanization predicts these outcomes, we next turned our attention to the possibility that perceivers may adjust the very nature of childhood in order to exclude Black male children from its protections. That is, Study 4 was designed to address the seeming paradox of Black children receiving fewer of the benefits of childhood when childhood is seen as an essential category (Haslam et al., 2000).

Study 4

Can a reduction in the tendency to see a social category as comprising essential characteristics explain the effect of implicit dehumanization on the racially disparate perceptions of children? Study 4 attempted to answer this question by asking participants to complete age and culpability assessments of Black and White male targets after being primed with dehumanizing words, which we hypothesized would decrease perceived essentialism of childhood. Participants were subliminally primed with either names of great apes or names of big cats. Previous research has found that priming with great apes (but not big cats) leads to the endorsement of police violence toward Black (but not White) criminal suspects (Goff, Eberhardt, et al., 2008). Perhaps the racial disparities we see in the treatment of children who are criminal suspects can be explained by the presence of such dehumanizing associations. Studies 2 and 3a provided evidence that age overestimations of Black child suspects occurred to the degree that Blacks were implicitly dehumanized. These studies also demonstrated that dehumanized Black child suspects were perceived to be more culpable (i.e., less innocent). Studies 3a and 3b provided evidence that implicit dehumanization predicts racially disparate perceptions of Black children in the world. Perhaps then, because negative perceptions of Black children were predicted by implicit dehumanization—and not bias—priming participants with these negative associations will lead to similarly negative perceptions. We sus-

pected that dehumanizing associations between Blacks and apes predict reduced perceived essentialism of Black children. Implicit dehumanization was associated with racial differences in age assessments and culpability in Studies 2 and 3a, but we expected that essentialism would mediate the relationship between dehumanization and our principal dependent variables (age assessments and culpability). That is, we suspected that dehumanizing Blacks would cause Black children to be seen in less essentialized terms, which, in turn, would increase age overestimations of Black children. Study 4 was designed to test these hypotheses.[7]

Method

Participants. Eighty-two participants from a large public university participated in exchange for course credit. Seventy percent of the participants (57) were female. The median age of participants was 19. When asked to report racial demographics, 42 responded "Asian," 30 responded "White," 0 responded "Black," 2 responded "Latino," and 8 responded "other."

Design. Participants were randomly assigned to a 2 (race of target children: Black vs. White) $\times$ 2 (prime: ape vs. great cat) $\times$ 2 (crime type: misdemeanor vs. felony) mixed model design, with crime type serving as the within-subjects variable.

Materials

Priming task. The ape-priming task has been used in previous research (Goff, Eberhardt, et al., 2008) to prime dehumanizing stereotypes of Blacks. It utilized the same set of animal words as did the dehumanization IAT. However, instead of having participants categorize the names of apes and great cats, we subliminally primed participants with the names of one or the other via parafovial priming visual priming as described by Bargh and Chartrand (2000). Participants were told that they were to stare at a fixation point in the middle of a screen and press D if a flash appeared on the left of that fixation point and K if a flash appeared on the right of the fixation point. "Flashes" were actually names of apes or great cats (i.e., monkey, gorilla, tiger, lion) displayed for 30 milliseconds at 6° from the fixation point.

Essentialism scale. The essentialism scale (Haslam et al., 2000) consists of eight items designed to assess whether a population views social categories as essentialized. The eight items ask about various aspects that contribute to perceptions of essentialism, including discreteness (having clear boundaries), uniformity (similarity to other group members), informativeness (how much group membership tells us about group members), naturalness (how natural or artificial group categorization is), immutability (how easy it is to change group membership), stability (how stable is the existence of the category itself throughout history), inherence (does the category have an underlying reality despite surface differences of its members), and necessity (does the category have features deemed necessary for membership). Participants respond on a 9-point Likert scale, with an answer of 1 indicating "strongly disagree" and an answer of 9 indicating "strongly agree." See the Appendix for the full scale.

Participants were asked to rate children along these eight dimensions. An example of the prompt participants received asked them "to think carefully about the general category 'children'. Don't think about the life course of an individual child but about the category itself." In addition, a picture of a group of either Black or White children was attached via watermark to the top left corner of the paper survey. This served as a prime, focusing participant's attention on either Black or White children. The pictures were matched via pretesting in the perceived age, attractiveness, and racial stereotypicality of each group of children.

Crime scenarios. The crime scenarios were a reduced version of those from previous studies. Out of concerns that the length of the experiment would fatigue participants, we asked participants to respond to six scenarios (two for each age category), each related to a child suspect from the same assigned racial group.

Age Assessment and Culpability Scale. These tasks were identical to those in previous studies.

Procedure. Participants were told that their first task was an "attentional vigilance task," as per previous research (Eberhardt, Goff, Purdie, & Davies, 2004; Goff, Eberhardt, et al., 2008), and were primed with either ape words or big cat words. Participants then completed the essentialism scale for the categories "children" and "adults" within their assigned racial group. Participants then read the crime scenarios for the same racial group as the essentialism scale they completed. Finally, participants completed age and culpability assessments for each of the children in the crime scenarios.

We predicted that the ape prime would increase the age overestimations and culpability assessments for Black male but not White male targets. We expected, consistent with Studies 2 and 3b, that the effect of the ape prime on the assessments of Black targets' age and culpability would increase with the seriousness of the suspected crime. Finally, we predicted that perceived essentialism would mediate the effects of implicit dehumanization on the assessment outcomes.

Results

Essentialism. Participant essentialism scores were submitted to a 2 (race of target: Black vs. White) $\times$ 2 (prime: ape vs. great cat) between-subjects ANOVA.

Analyses revealed a main effect of target race, $F(1, 78) = 14.71$, $p < .001$, such that White children were seen as a more essentialized group than were Black children. This was qualified by the predicted two-way interaction, $F(1, 78) = 6.45$, $p = .01$ (see Figure 4A). Simple effects tests revealed that the ape prime led to lower ratings of Black childhood essentialism than did the cat prime, $F(1, 78) = 6.69$, $p = .01$, whereas prime had no effect on the essentialism ratings of White children ($F = 1.05$, ns).

Age assessments. To test for differences in age assessments, we conducted a 2 (race of target: Black vs. White) $\times$ 2 (prime: ape vs. great cat) $\times$ 2 (crime type: misdemeanor vs. felony) repeated measures ANOVA, with crime type as the repeated measure variable.

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[7] Previous research has found that age is an essentialized category, though to a lesser degree than other social identities such as gender, ethnicity, race, and disability (Haslam et al., 2000). However, in this prior research, age was evaluated with the category framework "young" and "old." We felt that it could be the case that the categories young and old are more subjective than "children" and "adults." Consequently, this prior research may underappreciate the degree to which childhood is an essentialized category. Thus, we pretested the perceived essentialism of the categories young, old, children, and adults. We found that the categories children and adults were essentialized to a greater degree than the categories young and old.
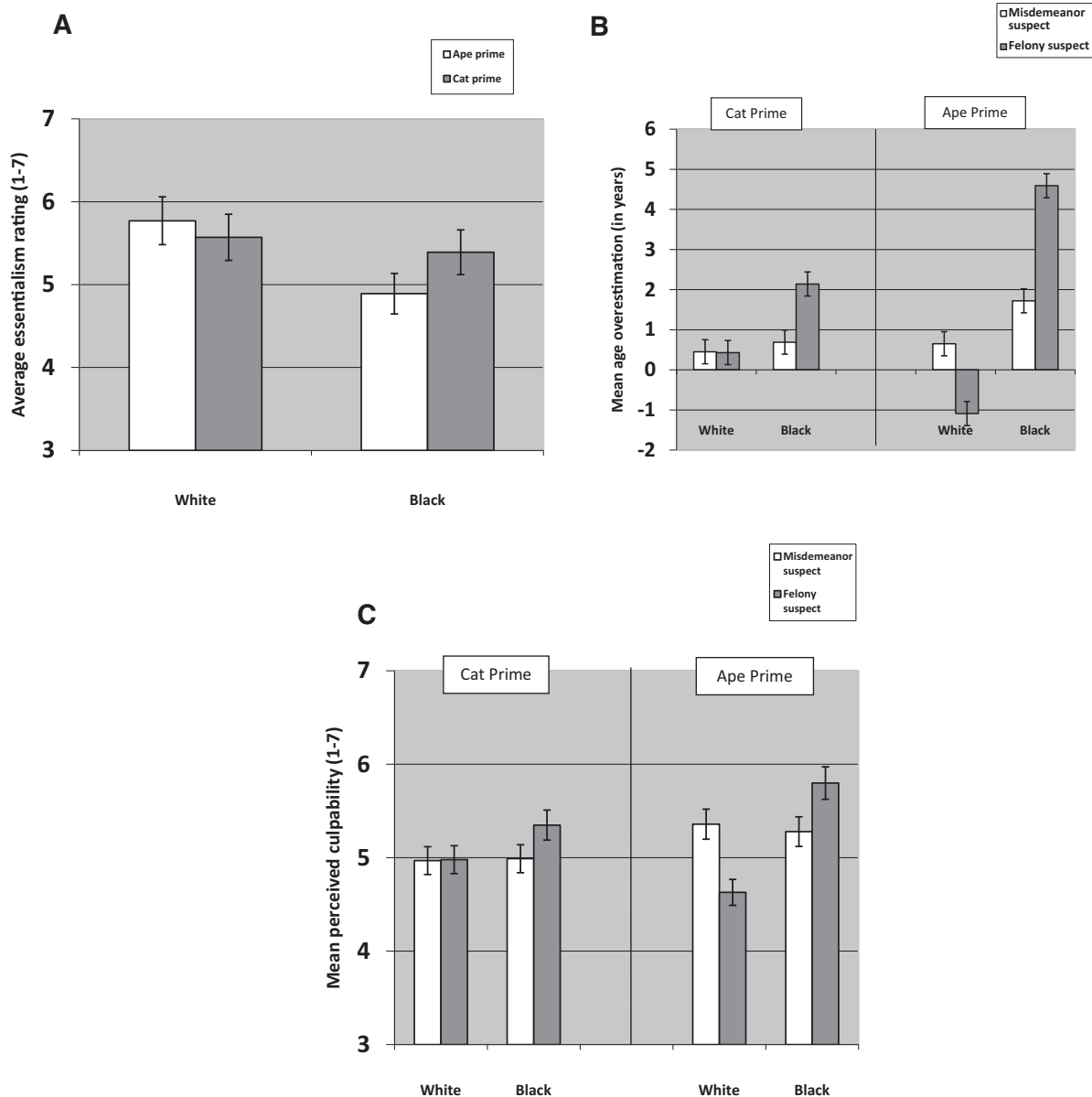
Figure 4. A: Participants' average essentialism rating for children of different races (Study 4). B: Participants' average age estimation accuracy for youth suspects of different races (Study 4). C: Participants' average culpability ratings for child suspects of different races (Study 4). Error bars represent standard errors.

This three-way ANOVA revealed a main effect of target race such that Black targets were perceived as older than were White targets, $F(1, 78) = 18.15, p < .001$. This effect was qualified by the predicted three-way interaction, $F(1, 78) = 9.33, p < .005$. Subsequent analyses revealed that, consistent with Study 2, in the absence of the ape prime, the crime type only influenced Black age estimates, $F(1, 78) = 8.11$, $p = .005$, and not White age estimates ($F < 1, ns$). However, after an ape prime, participants underestimated White suspects' age when they were suspected of a felony relative to a misdemeanor, $F(1, 78) =$

$11.16, p < .005$, whereas Blacks suspects had significantly greater age overestimations when suspected of a felony relative to a misdemeanor, $F(1, 78) = 31.81, p < .001$.

In other words, consistent with the previous studies, the age estimation gap between felony and misdemeanor suspects for Blacks increased in contexts of Black/ape implicit dehumanization, while working in the opposite direction for Whites (see Figure 4B).

Culpability. Again, the culpability scale had acceptable reliability ($\alpha = .68$). To test for differences in perceived culpability, we

conducted a 2 (race of target: Black vs. White) $\times$ 2 (prime: ape vs. great cat) $\times$ 2 (crime type: misdemeanor vs. felony) repeated measures ANOVA, with crime type as the repeated measure variable.

This three-way ANOVA revealed a main effect of target race, $F(1, 78) = 12.96, p = .001$, such that Black targets were perceived as more culpable than were White targets. There was also a marginal main effect of prime, $F(1, 78) = 3.55, p = .06$, such that targets were seen as more culpable after participants were primed with apes than after they were primed with great cats. These main effects were qualified by the predicted three-way interaction, $F(1, 78) = 7.19, p < .01$.

Subsequent analyses suggest that, for participants who receive the cat prime, crime type had a larger influence on the culpability assessments of Black targets, $F(1, 78) = 4.44, p < .05$, than of White targets ($F < 1$). As was the case with age errors, after an ape prime participants had lower ratings of White culpability for felony suspects, relative to misdemeanors suspects, $F(1, 78) = 18.23, p < .001$. Conversely, participants had higher ratings of culpability for Black felony suspects, relative to misdemeanors suspects, $F(1, 78) = 9.77, p < .005$.

In other words, similar to the patterns of age overestimation, implicit dehumanization was associated with an increased culpability gap between felony and misdemeanor suspects for Blacks but was associated with the opposite for Whites, leading to the perceptions of reduced culpability for White children (see Figure 4C).

Age assessment and culpability. As we did in Studies 2 and 3a, we tested the relationship between age errors and ratings of culpability. Again, we observed a moderately strong relationship between age errors and ratings of culpability such that the older participants rated a target, the more culpable they were rated for their suspected crimes, $r(81) = .41, p < .001$.

Mediational analyses of essentialism. Because after receiving an ape prime participants reported higher age overestimations of Black children suspected of felonies than of White children suspected of felonies, we followed the bootstrapping method outlined by Preacher and Hayes (2004) to test whether or not the essentialism scale functioned as the predicted mediator of the three-way interaction: specifically, the interaction of target race and prime received (as the predictor) on age overestimations of children suspected of felonies. To conduct these tests, we used the SPSS macro designed by Hayes (2012) for such bootstrapping analyses.

We created 1,000 bootstrap samples by randomly sampling observations with replacement from the original data set. We then calculated a 95% confidence interval of the indirect effect of this interaction on age estimations. For essentialism to mediate this effect on age overestimations, the 95% confidence interval should not include zero. This calculation revealed essentialism as a mediator, because the 95% confidence interval [.67 to 2.94] did not include zero. The direct effect of the interaction of target race and prime on age estimations remained significant, however ($p < .001$), indicating that the mediation was partial.

We then conducted bootstrapping analyses to test whether or not essentialism functioned as the mediator between the interaction of target race and prime received (as the predictor) on participant ratings of the culpability of felony suspects. We calculated a 95% confidence interval of the indirect effect of this interaction on culpability. This again revealed essentialism to be a mediator, because the 95% confidence interval [.15 to .68] did not include zero. The direct effect of the interaction of target race and prime on

culpability remained significant, however ($p < .01$), indicating that the mediation was partial.

Next, we wanted to investigate this interaction more fully, by testing ratings of essentialism as the mediator of the effect of the prime on age overestimations of Black felony targets specifically. To do so, we conducted bootstrapping analyses to test whether or not essentialism functioned as the mediator between the effect of prime received (as the predictor) on the age overestimations of Black felony suspects. We calculated a 95% confidence interval of the indirect effect of the ape prime on age overestimations. Here again, essentialism was a mediator because the 95% confidence interval [.66 to 3.25] did not include zero. The direct effect of prime on age estimations was no longer significant after controlling for perceived essentialism ($p = .29$), indicating that perceptions of essentialism fully explain the effect of the ape prime on the age overestimations of Black felony suspects.

Finally, we conducted the complementary analyses for culpability ratings, testing ratings of essentialism as the mediator of the effect of the prime on the culpability ratings of Black felony targets. To do so, we conducted bootstrapping analyses to test whether or not essentialism functioned as the mediator between the effect of prime received (as the predictor) on the culpability ratings of Black felony suspects. We calculated a 95% confidence interval of the indirect effect of the ape prime on culpability ratings. Here again, essentialism was a mediator because the 95% confidence interval [.05 to .47] did not include zero. Again, the direct effect of prime on culpability ratings was no longer significant after controlling for perceived essentialism ($p = .19$), indicating that perceptions of essentialism fully explain the effect of the ape prime on the culpability ratings of Black felony suspects.

Discussion

Study 4 provides evidence that reductions of perceived essentialism of Black children can help explain the effect of implicit dehumanization on the racially disparate perceptions of Black and White boys. Contexts where Blacks are implicitly dehumanized can facilitate perceivers thinking of Black children as a less essentialized group. This means that Black children are less likely to be afforded the full essence of childhood and its definitional protections. As a result, Black boys were more likely to be seen as older and more responsible for their actions relative to White boys. This study ties together findings from Studies 1–3 demonstrating that males of all races are not equally afforded the privilege of innocence—resulting in violent inequalities—and suggests that such racial inequalities in perceived innocence may be due to similar inequalities in the ways children of different racial groups are afforded the essence of childhood.

General Discussion

> There can be no keener revelation of a society's soul than the way in which it treats its children.
>
> —Nelson Mandela

Taken together, the studies presented provide a disturbing portrait of the effects of racism on Black children in the United States. Study 1 provides evidence that Black children are afforded the privilege of innocence to a lesser extent than children of other races. Studies 2–3 build on these findings by demonstrating that

Black boys are seen as more culpable for their actions (i.e., less innocent) within a criminal justice context than are their peers of other races. In addition, Black boys are actually misperceived as older relative to peers of other races. Further, the above research provides evidence that, in undergraduate and police populations, these racial disparities are predicted by the implicit dehumanization of Blacks. These findings demonstrate that dehumanization of Blacks not only predicts racially disparate perceptions of Black boys but also predicts racially disparate police violence toward Black children in real-world settings.

Finally, Study 4 demonstrates that implicit dehumanization can facilitate these racial discrepancies. Participants who were primed with dehumanizing associations for Blacks showed a reduced belief in the essential distinction between Black children and Black adults. This loss of essentialism led to decreased perceptions of the innocence of Black boys. In policing contexts, this loss of protections may result in violent outcomes (Study 3a).

Limitations

Despite the consistent support of our hypotheses across four studies, these data are not without limitations. The present research focuses on the plight of Black boys, sidestepping the complications that might arise from a race/gender intersectional approach to this topic. Girls, particularly Black girls, represent a growing share of children in the criminal justice system (Guevara, Herz, & Spohn, 2006). Consequently, it is important for future work to fill this gap.

In addition, despite the richness of the data sets utilized in Study 3a, the data linking anti-Black dehumanization to police violence toward Black children are predominantly correlational. It is reasonable to suspect that the inference we hypothesize (that racially disparate treatment occurs where dehumanization is present predicts) is reversed in police officers. That is, it is plausible that negative interactions with Black children disproportionately produce implicit anti-Black dehumanization. Though Study 3a provides experimental evidence that racial differences in age overestimation and culpability follow from the presence of dehumanizing stereotypes, this is merely suggestive of a causal direction with regard to dehumanization and actual violence. Future research should endeavor to clarify the relationship between dehumanization and racial disparities in police use of force.

Conclusions

The present research provides four important theoretical and practical contributions to the study of intergroup relations. First, Study 4 provides novel insights into the processes underlying the perceived essentialism of social groups. Previous research has demonstrated that global perceptions of the essentialism are malleable (Morton, Postmes, Haslam, & Hornsey, 2009). However, we have demonstrated that the malleability of perceptions of essentialism is further nuanced. Specifically, we have provided evidence that perceptions of the essential nature of children can be moderated by race. For those who hold dehumanizing implicit associations between Blacks and apes—even when they do not endorse traditionally prejudiced attitudes—Black children are seen as a decreasingly essentialized group. For the same individuals, White children were seen as an increasingly essentialized group. Future essentialism research should attend to the implications of

dehumanization on the essentialism of social groups. It stands to reason that one cannot possess essential human characteristics if one is not seen as fully human. It may be the case that other strongly essentialized identities, such as gender and sexual orientation (Haslam et al., 2000), are moderated by race and its potential dehumanizing associations.

Second, the present findings also advance previous research that suggests that racial and gender essentialism exacerbate intergroup biases and discrimination (Keller, 2005; Morton et al., 2009 Williams & Eberhardt, 2008) but essentialism regarding sexual orientation attenuates it (Dar-Nimrod & Heine, 2011; Jayaratne et al., 2006). Researchers suggest this is because race and gender biases stem from conceptions of groups as distinct. Essentializing those group differences, then, magnifies the conflict. Anti-gay prejudice, on the other hand, often stems from moral disgust (Hebl, Foster, Mannix, & Dovidio, 2002), an emotion that is often intensified by the notion that an individual chose his or sexual orientation. Essentializing sexual orientation reduces this notion of choice, thereby reducing anti-gay prejudice (Kahn & Fingerhut, 2011). In the present findings, however, reducing essentialist perceptions of the category "children" imperils Black targets. This suggests that if individuals are members of "protected" categories (e.g., children, elderly, mentally challenged), essentializing those categories may serve a protective function in intergroup conflicts. Similarly, the reverse may be true for individuals who belong to reviled categories (e.g., child predators, drug addicts, and murderers). Future essentialism research may benefit from expanding attention to multiple categories in intergroup contexts.

Third, a novel implication of the dehumanizing representations of Blacks presented in this paper is that Black boys can be misperceived as older than they actually are and prematurely perceived as responsible for their actions during a developmental period where their peers receive the beneficial assumption of childlike innocence. This finding suggests that dehumanization may affect other-person perception functions in the service of permitting severe out-group derogation and antagonism. Importantly, though the data were inconsistent, it appears that anti-Black dehumanization may have a flip side—a kind of pro-White "humanization"—as the dehumanization IAT predicted decreased age estimations and culpability for White suspects. Given previous findings that dehumanization also seems implicated in racial disparities in death penalty outcomes (Goff et al., 2008), this provides evidence of an urgent need to explore further the consequences of intergroup dehumanization in the most consequential settings.

Finally, it is worth noting that the data reported in Studies 3a and 3b represent the first time that racial attitudes data have been used to predict racial disparities in policing on this scale. These findings, therefore, represent an important step toward understanding racial disparities in law enforcement—and in the world more generally—providing evidence that psychological explorations of police behavior on the streets can yield important insights in this arena.

Closing Remarks

Racially differential treatment of children is an important yet underexplored arena within social psychology. The present findings suggest how urgently field and laboratory work are needed to fill in this research gap. In addition, they suggest that if, as Alice Walker says, "The most important question in the world is, "Why is the child

crying'?" then, for Black children, the most important answer may be that they cry because they are not allowed to be children at all.

Sociologist Michael Kimmel (2008) has suggested that, for middle-class White males, the period of time when boys are not held fully responsible for their actions can extend well into their late 20s. In contrast, the present research suggests that Black children may be viewed as adults as soon as 13, with average age overestimations of Black children exceeding four and a half years in some cases (i.e., Studies 2 and 3a). In other words, our findings suggest that, although most children are allowed to be innocent until adulthood, Black children may be perceived as innocent only until deemed suspicious.

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Appendix

Essentialism Scale as Used in Study 4

Today you will answer 16 total questions about children and adults.

For the first 8 questions we would like for you to think carefully about the general category "children." Don't think about the life course of an individual child but about the category itself.

1. Discreteness

Some categories have sharper boundaries than others. For some, membership is clear-cut, definite, and of an "either/or" variety; people either belong to the category or they do not. For others, membership is more "fuzzy"; people belong to the category in varying degrees.
For the group CHILDREN, is group membership:
1———————2———————3———————4———————5———————6———————7———————8————9
Clear cut;   Neither   Fuzzy;
Either/or   Indefinite

2. Uniformity

Some categories contain members who are very similar to one another; they have many things in common. Members of these categories are relatively uniform. Other categories contain members who differ greatly from one another and don't share many characteristics.
Is the group CHILDREN:
1———————2———————3———————4———————5———————6———————7———————8————9
Diverse;   Neither   Uniform;
Differing   Similar

3. Informativeness

Some categories allow people to make many judgments about their members; knowing that someone belongs to the category tells us a lot about that person. Other categories allow only a few judgments about their members; knowledge of membership is not very informative.
For the group CHILDREN, is group membership:
1———————2———————3———————4———————5———————6———————7———————8————9
Uninformative;   Neither   Informative;
Few judgments   Many judgments

4. Naturalness

Some categories are more natural than others, whereas others are more artificial.
Is the group CHILDREN:
1———————2———————3———————4———————5———————6———————7———————8————9
Artificial   Neither   Natural

5. Immutability

Membership in some categories is easy to change; it is easy for members to become nonmembers. Membership in other categories is relatively immutable; it is difficult for category members to become nonmembers.
For the group CHILDREN, is group membership:
1———————2———————3———————4———————5———————6———————7———————8————9
Easily changed;   Neither   Not easily changed;
Mutable   Immutable

(*Appendix continues*)

6. Stability

Some categories are more stable over time than others; they have always existed, and their characteristics have not changed much throughout history. Other categories are less stable; their characteristics have changed substantially over time, and they may not have always existed.

Which best describes the group CHILDREN:

1————2————3————4————5————6————7————8————9

Unstable over time;   Neither   Stable over time;
Changes much   Changes little

7. Inherence

Some categories have an underlying reality; although their members have similarities and differences on the surface, underneath they are basically the same. Other categories also have similarities and differences on the surface but do not correspond to an underlying reality.

Which best describes the group CHILDREN:

1————2————3————4————5————6————7————8————9

Underlying reality;   Neither   No underlying reality
Sameness   or sameness

8. Necessity

Some categories have necessary features or characteristics; without these characteristics someone cannot be a category member. Other categories have many similarities, but no features or characteristics are necessary for membership.

Which best describes the group CHILDREN:

1————2————3————4————5————6————7————8————9

Necessary features   Neither   No necessary features
and characteristics   and characteristics

For the next 8 questions we would like for you to think carefully about the general category "adults." Don't think about the life course of an individual adult but about the category itself.

9. Discreteness

Some categories have sharper boundaries than others. For some, membership is clear-cut, definite, and of an "either/or" variety; people either belong to the category or they do not. For others, membership is more "fuzzy"; people belong to the category in varying degrees.

For the group ADULTS, is group membership:

1————2————3————4————5————6————7————8————9

Clear cut;   Neither   Fuzzy;
Either/or   Indefinite

10. Uniformity

Some categories contain members who are very similar to one another; they have many things in common. Members of these categories are relatively uniform. Other categories contain members who differ greatly from one another and don't share many characteristics.

Is the group ADULTS:

1————2————3————4————5————6————7————8————9

Diverse;   Neither   Uniform;
Differing   Similar

11. Informativeness

Some categories allow people to make many judgments about their members; knowing that someone belongs to the category tells us a lot about that person. Other categories allow only a few judgments about their members; knowledge of membership is not very informative.

For the group ADULTS, is group membership:

1————2————3————4————5————6————7————8————9

Uninformative;   Neither   Informative;
Few judgments   Many judgments

12. Naturalness

Some categories are more natural than others, whereas others are more artificial.

Is the group ADULTS:

1————2————3————4————5————6————7————8————9

Artificial   Neither   Natural

13. Immutability

Membership in some categories is easy to change; it is easy for members to become nonmembers. Membership in other categories is relatively immutable; it is difficult for category members to become nonmembers.

For the group ADULTS, is group membership:

1————2————3————4————5————6————7————8————9

Easily changed;   Neiher   Not easily changed;
Mutable   Immutable

14. Stability

Some categories are more stable over time than others; they have always existed, and their characteristics have not changed much throughout history. Other categories are less stable; their characteristics have changed substantially over time, and they may not have always existed.

Which best describes the group ADULTS:

1————2————3————4————5————6————7————8————9

Unstable over time;   Neither   Stable over time;
Changes much   Changes little

15. Inherence

Some categories have an underlying reality; although their members have similarities and differences on the surface, underneath they are basically the same. Other categories also have similarities and differences on the surface but do not correspond to an underlying reality.

Which best describes the group ADULTS:

1————2————3————4————5————6————7————8————9

Underlying reality;   Neither   No underlying reality
Sameness   or sameness

16. Necessity

Some categories have necessary features or characteristics; without these characteristics someone cannot be a category member. Other categories have many similarities, but no features or characteristics are necessary for membership.

Which best describes the group ADULTS:

1————2————3————4————5————6————7————8————9

Necessary features   Neither   No necessary features
or characteristics   or characteristics