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Children's Evaluations of and Reactions to Racial Discrimination

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> Despite the potential benefits of children's confrontations of other children's racial biases—especially for targets of bias—little is known about how young children react upon observing instances of racial discrimination. In the present research, child participants completed a novel measure designed to test their reactions to another child's racially discriminatory behavior. The measure presented scenarios in which a protagonist who matched the participant's race (Asian, Latinx, or White) repeatedly excluded Black children from different social activities. Participants evaluated the protagonist's behavior and had an opportunity to confront the protagonist. Both a pilot study and a full preregistered study revealed that the novel measure had high reliability within participants and substantial variability across participants (pilot study: N = 54 U.S. White 5-7-year-olds, 27 girls, 27 boys, median household income range of \$125,001-\$150,000; full study: N = 126 U.S. 4-10-year-olds, 33.33% Asian, 33.33% Latinx, 33.33% White, 56 girls, 70 boys, median household income: \$120,001-\$125,000). In the full study, older children and children whose parents reported more racial socialization rated the protagonist's behavior more negatively; older children were also more likely to confront the protagonist. Neither participants' own race nor their prior exposure to racial diversity impacted their evaluations or confrontations of discrimination. The results have implications for understanding children's potential to serve as agents of social change by regulating other children's racial biases and behaviors.

Public Significance Statement

This research evaluates children's developing ability to confront other children's discrimination—a key component of interpersonal anti-racist action. By confronting peers' discrimination, children may be able to regulate other children's discriminatory behaviors, reduce pain caused by racial discrimination, and create norms that discourage discrimination. Our results suggest that children—especially those 8 years and older—could be capable of this type of foundational anti-racism.

Keywords: social exclusion, confrontation, race, children

Asian, Latinx, and White children display biases disfavoring Black people relative to members of other racial groups from an early age (Dunham et al., 2007; Kinzler et al., 2009; Pahlke et al., 2012; Qian et al., 2019; Shutts et al., 2013). Black children are aware of and affected by such biases: They commonly report racial discrimination from peers (Cave et al.,

2020; Del Toro et al., 2021; Marcelo & Yates, 2019; Wong et al., 2003), and experiences with racial discrimination are associated with negative outcomes for Black children in several domains (e.g., academic performance, mental and physical health; see Cave et al., 2020; Del Toro et al., 2021; Marcelo & Yates, 2019; Wong et al., 2003).

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Many researchers have focused on addressing children's racial biases—including those directed toward Black children—by enlisting adults to intervene on children's biases (e.g., J. M. Hughes et al., 2007; Qian et al., 2019; Vittrup & Holden, 2011). For example, researchers have trained adult experimenters to employ biasreduction strategies with children in the laboratory (e.g., Qian et al., 2019; see Aboud et al., 2012 for review) and have also worked to help parents and teachers engage with children about race (e.g., J. M. Hughes et al., 2007; Vittrup & Holden, 2011). Lost in this emphasis on adults' regulation of children's racial biases, however, is the potential for children themselves to play a role in regulating other children's racial biases.

Outside the race domain, there is ample evidence that children play a powerful role in regulating their peers' social behaviors (e.g., gender expression: Hartup, 1979, 1999; Martin, 1989; Witt, 2000; enforcement of social norms: Göckeritz et al., 2014; Siegal & Storey, 1985; Smetana, 1981). For example, in one study, 5-year-old children created norms for how to play with a novel toy (Göckeritz et al., 2014). Once such norms were established, children then marked peers' norm-defying behavior as wrong and gave peers directives on how to conform to normative play expectations; furthermore, children who received corrective feedback from their peers changed their behavior to conform with group norms about how to play with the novel toy.

Little research has focused on children's regulation of other children's behaviors in the domain under study for the present research children's racial biases. However, multiple scholars have noted the potential value of children's regulation of other children's biases (Aboud & Levy, 2000; D'Esterre et al., 2022; Miller & Garran, 2007; Paluck et al., 2016). For example, Frances Aboud, a prominent researcher focused on children's racial biases, has argued that a powerful way to reduce children's biases is for other children to intervene and discourage the expression of such biases (Aboud & Levy, 2000). Aboud notes that such confrontations could regulate the attitudes and behaviors of perpetrators of bias, reduce pain for the targets of bias, create norms discouraging bias for observers, and serve to reinforce confronters' non-biased values. Aligning with this idea, when adolescents confront peers' bullying, including bullying directed toward members from minoritized groups (i.e., bias-based bullying), bullying behaviors cease almost immediately and the frequency of bullying declines in a classroom as a whole (Salmivalli et al., 1996, 2011).

Although no research, to our knowledge, has directly examined whether children confront peers when they witness expressions of racial biases, there is reason to believe that children may be capable of such confrontations prior to adolescence. First, a study by Brown (2006) showed that children as young as 5 years of age are capable of detecting discrimination; in particular, participants in the study learned about a teacher's favoring of students from one racial group over another and in some cases explained the teacher's behavior as due to racial discrimination. Second, children negatively evaluate intergroup exclusion from an early age (e.g., Killen & Stangor, 2001; Møller & Tenenbaum, 2011; Mulvey, 2016; Theimer et al., 2001) and sometimes share resources with disadvantaged racial groups in order to rectify unequal distributions of resources (e.g., Elenbaas et al., 2016; Rizzo & Killen, 2016, 2020). In the present research, we evaluated whether children would take an additional step to confront a perpetrator of discrimination—that is, tell the perpetrator that the discriminatory behavior is wrong. In what follows, we elaborate on children's reasoning about intergroup exclusion and

responses to intergroup inequality and then provide further details about our approach to investigating children's confrontations of other children's racial discrimination.

Children's Evaluations of Social Exclusion

A large literature has focused on characterizing how children reason about acts of social exclusion in intergroup contexts—and much of this literature has relied on a paradigm called the "Group Exclusion Evaluation Task" (e.g., Killen & Stangor, 2001; Møller & Tenenbaum, 2011; Mulvey, 2016; Theimer et al., 2001). In this paradigm, children are presented with a vignette in which one group of children excludes a child who does not share the group's social identity (e.g., a group of boys excludes a girl). After hearing the vignette, children are asked whether the behavior, labeled for participants as "exclusion," is right or wrong and then are asked to explain their answers. Researchers typically code whether children negatively evaluate the behavior (i.e., say it is wrong) and what type of reasoning children provide for their decisions. For example, researchers code whether children provide reasoning that relies on fairness or equality, termed "moral reasoning" (e.g., "It wouldn't be fair to exclude them"), or reasoning that focuses on etiquette, group functioning, or norms, termed "social-conventional reasoning" (e.g., "If you let someone new into the group, they won't know how it works").

Researchers have applied the Group Exclusion Evaluation Task to evaluate children's reasoning about exclusion based on social group membership—usually gender or race—from the preschool years throughout middle childhood. Research with preschool-age children typically focuses on the gender context, while studies of older children (ages 7 and older) include the race context. Throughout the studied age ranges, when exclusion is said to occur solely due to social identity (e.g., "these boys excluded this girl because she is a girl"), children negatively evaluate exclusion and provide moral reasons for their negative evaluations, with little variation as a function of age¹ (e.g., Killen et al., 2001; Killen & Stangor, 2001; Møller & Tenenbaum, 2011; Theimer et al., 2001). Although we know from these studies that children negatively evaluate intergroup exclusion across childhood, what is unexamined in the social exclusion literature is whether children would confront the perpetrator of discrimination to redress the inequality.

Children's Responses to Inequality

Research on children's rectification of unequal resource distributions provides more direct evidence that children have the potential to take actions to address inequality. As in the case of research on social exclusion, there is a paradigm that is commonly used to assess children's responses to intergroup inequality in the resource distribution domain, which we will call the "Resource Allocation Task" (e.g., Elenbaas et al., 2016; Olson et al., 2011; Rizzo & Killen, 2016, 2020). In this paradigm, children hear vignettes about a

¹ In some versions of the Group Exclusion Evaluation Task, the experimenter provides additional information that has nothing to do with social category membership and that could serve as justifications for exclusion (e.g., the excluded person might not be good at the activity). In such cases, as children age, they are more likely to positively evaluate and justify exclusion with social-conventional reasoning.

resource inequality where one group of people receives more resources than another group of people. Children are then provided with an opportunity to distribute additional resources themselves. Children can reinforce the inequality by providing resources to the previously advantaged target or can rectify the inequality by providing resources to the previously disadvantaged target.

The Resource Allocation Task has been frequently implemented to study how children between 3 and 10 years of age respond when members of different racial groups receive different numbers of resources (e.g., Black children consistently receive one resource and White children consistently receive six resources). With increasing age, children are more likely to rectify (rather than perpetuate) unequal distributions of resources, including, and sometimes especially, when Black children are disadvantaged (Elenbaas et al., 2016; Elenbaas & Killen, 2016; Olson et al., 2011; Rizzo & Killen, 2016, 2020). Overall, findings from research employing the Resource Allocation Task indicate that children may be more likely to take actions to address discriminatory behavior as they age (Killen & Smetana, 2015). However, there are no data regarding whether—when given the chance—children would be willing to directly confront a perpetrator of racial discrimination. This is a key focus of the present research.

Present Research

In the present research, we designed a paradigm where children could observe discrimination occurring and could confront the perpetrator of bias. We will refer to our paradigm throughout the present article as the "Reactions to Discrimination Task." In the task, we chose to focus on children's responses to the social exclusion of Black children because this is a type of bias that Black children report commonly experiencing (Marcelo & Yates, 2019; Van Ausdale & Feagin, 2001; Wong et al., 2003) and because biases against Black people are the most robustly documented racial biases among children from multiple racial groups, including those who are Asian, Latinx, and White (Baron & Banaji, 2006; Dunham et al., 2007, 2013; Rae & Olson, 2018). Furthermore, we chose to focus on children between 4 and 10 years of age in order to span an age range where children begin attaching meaning to racial groups (Bigler & Liben, 2007) and where previous research suggests children believe intergroup exclusion is wrong (Group Exclusion Evaluation Task: Killen & Stangor, 2001; Rizzo & Killen, 2016). As children progress through this age range, research shows that they increasingly seek to rectify intergroup inequality (Resource Allocation Task: Elenbaas et al., 2016; Olson et al., 2011; Rizzo & Killen, 2016, 2020), suggesting a potential developmental change within this age span.

In the Reactions to Discrimination Task, participants viewed six scenarios in which a protagonist who matched participants' own race (Asian, Latinx, or White) chose to include multiple racial ingroup members and exclude multiple Black children from various social activities. Participants were told that the protagonist could have included any number of children, so that it was clear the protagonist had chosen to exclude Black children. To reflect experiences that may occur in children's everyday lives, the behavior was never labeled as exclusion by the experimenter and neither the race of the targets nor the race of the protagonist was labeled. As such, participants, themselves, had to impose meaning on the protagonist's behavior in order to conclude that race-based exclusion

had occurred. Throughout the scenarios, we described activities (e.g., playing a boardgame) that were not strongly associated with people of a particular race, and participants were told that everyone wanted to participate in and was good at each activity. We provided this information to highlight that exclusion was occurring due to the children's race rather than any other conceivable reason (e.g., ability, interest).

After observing the protagonist's choices, children evaluated the protagonist's decisions and had an opportunity to confront the protagonist. In particular, children were asked whether they liked or did not like what the protagonist did after each trial ("evaluation of discrimination") and were also asked whether they wanted to send a message to the protagonist ("confrontation of discrimination"). We were interested in whether children negatively evaluated and sent messages that confronted the protagonist's exclusionary behavior.

Finally, given that the Reactions to Discrimination task was a new measure, we assessed how the measure related to two other components of children's racial cognition. In particular, we evaluated how children's evaluation and confrontation of discrimination related to children's racial attitudes (Rae & Olson, 2018; Shutts et al., 2013) and rectification of resource inequality ("Resource Allocation Task;" Elenbaas & Killen, 2016; Olson et al., 2011). These comparisons allowed us to assess the extent to which children's responses on our task were related to or distinct from existing measures of children's race-related attitudes and behaviors. We conducted both a pilot study and a full study to evaluate children's reactions to discrimination. We preregistered the methods, data analysis plan, and hypotheses for the full study on the Open Science Framework (OSF) (https://osf.io/9t8kf/).

Hypotheses

Effects of Age. Drawing on findings from the Group Exclusion Evaluation Task and the Resource Allocation Task, Killen and colleagues have articulated a model—the Social Reasoning Domain (SRD) model (Rutland et al., 2010)—that is useful to consider in the context of hypotheses for effects of age in our task. According to the model, young children's capacity for moral reasoning leads them to evaluate intergroup social exclusion as wrong from a young age as long as the exclusion is "straightforward" (i.e., not attributable to other factors such as characters' abilities or interests). Following from this logic, one might predict that all children would negatively evaluate racial exclusion in our task and that responses would not differ across our age range (i.e., 4-10 years). However, we hypothesized that children's negative evaluations of exclusion would in fact increase with age because negatively evaluating racebased exclusion in our task requires that participants notice, on their own, the race of all characters (those included and excluded). Research on the automatic encoding of race (Weisman et al., 2015) and the development of pattern detection (Papic et al., 2011; Warren & Cooper, 2006) suggests that older children would be more likely than younger children to: (a) encode the race of the protagonist and the target children and (b) recognize a pattern in which children, within and across trials, are systematically excluded due to race. The considerations led us to preregister the hypothesis that with age, children would be more likely to negatively evaluate the protagonist's behavior in our Reactions to Discrimination Task.

When considering children's confrontation of discrimination, the SRD model predicts age-related changes in children's willingness to take action to rectify inequality due to changes in cognitive capacities that come with maturation (Elenbaas et al., 2016; Elenbaas & Killen, 2016; Rizzo & Killen, 2016, 2020). In particular, this model suggests that with age, children are more likely to rectify inequality due to improved perspective-taking abilities (Abrams & Rutland, 2008). Aligning with this logic, we preregistered the hypothesis that with increasing age, children would be more likely to confront the protagonist in the Reactions to Discrimination Task, condemning the exclusionary behavior.

Effects of Race and Environment. In addition to testing predictions based on child age, we evaluated how participants' evaluations and confrontations of racial exclusion were affected by participants' own race, the racial diversity of participants' environment, and children's racial socialization experiences in the home.

Although Asian, Latinx, and White children all express biases disfavoring Black children (Dunham et al., 2007, 2013; Kinzler et al., 2009; Qian et al., 2017; Shutts et al., 2013), Asian and Latinx children are more likely than White children to be the targets of racial discrimination themselves (Dulin-Keita et al., 2011; Pachter, Szalacha, et al., 2010)—and such experiences might make them more sensitive to, or practiced in responding to, situations involving racial discrimination. Indeed, research with adolescents reveals that when youth are members of marginalized ethnic groups, they report higher intentions to confront bias-based bullying (Gönültaş & Mulvey, 2021). As such, we preregistered the hypothesis that Asian and Latinx children would be more likely than White children to negatively evaluate and confront racial exclusion.

Similarly, according to Intergroup Contact Theory (Allport, 1954), people's intergroup contact experiences influence the way they think about and respond to outgroup members. Among children, exposure to diversity increases children's tendency to notice racial groups (Lam et al., 2011; Pauker et al., 2016) and decreases their racial biases (Aboud & Brown, 2013; Gaias et al., 2018). Furthermore, exposure to diversity likely provides opportunities for children to observe confrontations of discrimination (by peers, teachers, or parents; Aboud & Levy, 2000). Finally, among adolescents, exposure to diversity increases reported likelihood of confronting ethnic discrimination (Gönültaş & Mulvey, 2021). For these reasons, we preregistered the hypothesis that increasing exposure to diversity would correlate positively with children's negative evaluations and confrontations of racial exclusion.

Given the important role that parents play in shaping their children's race-related thinking (e.g., D. Hughes et al., 2006; Perry et al., 2019; Scott et al., 2020a, 2020b), we also evaluated parents' selfreported conversations about racial inequity. Although there is a great deal of research on cultural socialization and preparation for bias among parents of color (for reviews, see Anyiwo et al., 2018; D. Hughes et al., 2006), less research has focused on parent-child conversations about racial inequity among parents of any race. In the few studies in this area—conducted primarily with adolescents parents' conversations with their children about racial inequity have been correlated with children's racial attitudes (Katz, 2003; Vittrup & Holden, 2011), recognition of racial discrimination (D. Hughes & Johnson, 2001; Thompson, 1999), and motivation to address social inequalities (Anyiwo et al., 2018). Consistent with this prior research, we hypothesized that children whose parents reported more discussions with their child about racial inequity would be more likely to negatively evaluate and confront racial exclusion.

Pilot Study

Before undertaking our full study, we conducted a pilot study to evaluate whether there was variability in how children responded to the Reactions to Discrimination Task. In addition, the pilot study afforded the opportunity to develop and refine a coding scheme for the open-ended questions. To this end, we recruited a convenience sample of 5–7-year-old children who were completing an unrelated study in our laboratory. After completing the other study, children completed the Reactions to Discrimination Task. This pilot study was not preregistered but laid the foundation for the full preregistered study.

Method

Participants

The participants in the pilot study were 54 (27 girls, 27 boys) 5–7-year-old U.S. White children ($M_{\rm age} = 6.53$ years, SD = 1.07 years). The median annual household income range for participants' families was \$125,001–\$150,000. The sample size for the pilot study was not pre-determined; we collected data until we believed we could adequately investigate variability in children's ability to evaluate and confront discrimination.

Materials, Design, and Procedure

Participants completed the study online via the video-conferencing platform Zoom, with children participating from their own homes. The experimenter (who was always a White female) used the screenshare function in Zoom to share a PowerPoint file containing all materials for the study. At the start of the testing session, participants were introduced to a fictional character named Morki. Morki was White, was always gender-matched to the participant, and was represented by a photograph of a real child. Participants were told that they would hear stories in which Morki made choices about the people with whom she/he wanted to include in different play activities.

There were six unique trials. Each trial featured headshot photographs of Black and White children (all gender-matched to the participant) displayed in a 2×3 grid. Photographs were not repeated across trials. Across participants, we counterbalanced the order of the scenarios, which set of photographs appeared on a given trial, and the location of Black and White faces within each trial. Photographs of Black and White children appeared equally in all locations of the grid over trials.

On each trial, participants: (a) learned about the activity for which Morki was selecting peers (e.g., "Morki gets to choose kids to go to a movie with her [him] and the rest don't get to go to the movie right now."), (b) saw pictures of three White and three Black children (the race of targets was never labeled), (c) heard that all six children wanted to participate in the activity and were all really good at the activity (e.g., "These kids all really like movies and all really want to go to the movies right now"), and (d) were told that Morki could choose as many or as few people to play as she [he] wanted. Participants then saw a circle appear around each of the three White children (and none of the three Black children), one by one, to indicate Morki's choices.

Evaluation of Discrimination. At the conclusion of each trial, participants were asked to indicate their evaluation of Morki's behavior. Specifically, they were told that if they "liked

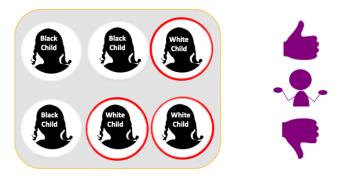
what Morki did," they should give a thumbs up; that if they "did not like what Morki did," they should give a thumbs down; and that if they were "not sure what you thought about what Morki did," they should shrug their shoulders. See Figure 1 for a sample trial.

Once participants had completed all six trials, they were asked to provide an explanation for one of their evaluations of Morki's behavior. Participants were asked for their evaluation of Morki's behavior after all six trials, so their evaluations were not affected by having to explain their responses between each trial. When soliciting participants' explanations, the experimenter returned to a previous trial and reminded the child of the activity in the scenario and Morki's choices prior to asking the participant to explain their evaluation (e.g., "Remember here Morki got to choose who to play a soccer game with. Morki chose these three kids"). When participants provided at least one "thumbs down" response (n = 28), we asked participants to explain their evaluations on the most recent trial where they gave a "thumbs down" response. If participants never gave a "thumbs down" response, but did give a "shrug" response (n = 10), they were asked to explain why they were not sure about what they thought on the most recent trial with a "not sure" decision. If participants approved of Morki's behavior on all trials (n = 16), they were asked why they liked what Morki did on the final trial.

Confrontation of Discrimination. After all other questions, participants were given the opportunity to confront Morki's behavior. Participants viewed a display depicting all of the children who were chosen by Morki on one side of the screen, and all of the children who were not chosen by Morki on the other side of the screen—that is, children saw 18 White children who were included on one side of the screen and 18 Black children who were excluded on the other side of the screen (side of the screen was counterbalanced between participants). The experimenter reminded participants which children had been selected by Morki, and then said: "I can write down a message to send to Morki. Do you want to tell Morki anything about his/her choices?" The experimenter pretended to transcribe the participant's words.

Figure 1

Example Evaluation of Discrimination Trial on the Reactions to Discrimination Task



Note. Girls saw pictures of girls; boys saw pictures of boys. Each trial display in the actual study presented photographs of six unique children (without racial labels). The figure does not present the photographs used in the actual study because of publishing rights restrictions. See the online article for the color version of the figure.

Results

Coding and Scoring

Open-ended responses were independently coded by two trained coders. All responses children gave are available on OSF (https://osf.io/9t8kf/); example responses are available in Table 1.

Evaluation of Discrimination. Responses were scored such that each "thumbs up" response received a score of 1, each "thumbs down" response received a score of -1, and each "shrug shoulders" response received a score of 0. Responses across the six trials were summed, and total scores could range from -6 to 6, with lower scores indicating more condemnation of Morki's choices. Children's evaluation explanations were coded for whether participants (a) provided an explanation that invoked race; (b) provided an explanation that referenced fairness or exclusion without referencing race; or (c) provided no explanation, an irrelevant explanation, or an un-codable explanation ($\kappa = 0.96$).

Confrontation of Discrimination. Responses to the confrontation probe were coded for whether participants (a) sent a message that sought to rectify the behavior while referencing race; (b) sent a message that sought to rectify the behavior due to exclusion without mentioning race; (c) sent a positive message to Morki; (d) sent an irrelevant or un-codable message to Morki; or (e) sent no message to Morki ($\kappa = 0.98$). For analyses including confrontation, we binned responses into two categories: (a) messages that confronted the discriminatory behavior (i.e., speaking out against the behavior, thereby potentially disrupting future discrimination; codes a and b) or (b) messages that did not confront the discrimination (codes c, d, and e).

Descriptive Information for Reactions to Discrimination Task

Evaluation of Discrimination. We first examined descriptive statistics to explore how participants evaluated Morki's choices on the six trials. As a group, participants utilized the full potential range of the task, with scores ranging from -6 (always disapproving) to 6 (always approving); see Figure 2a. Children had a mean score of 1.59 (SD = 4.31) for the evaluation of discrimination component of the task, meaning they were more likely to approve of Morki's choices than to disapprove of Morki's choices; comparison to chance (0): t(53) = 2.72, p = .009, $\eta_p^2 = 0.12$. Children's responses across the six trials showed high reliability ($\alpha = 0.91$). For participants who explained negative evaluations (n = 28), 32.14% provided race-related explanations, 25.00% provided exclusion-related explanations, and 42.86% provided no real explanation for their evaluations. For participants who explained "shrug" responses (n = 10), 100% provided no real explanation for their evaluations. Finally, for participants who explained positive evaluations (n = 16), 12.50% provided race-related explanations for their approval (e.g., "Cuz they're White skin") and 87.50% of participants provided no real explanation for their evaluations.

Confrontation of Discrimination. Examples of children's responses to the confrontation prompts are displayed in Table 1. Table 1 also presents frequency information for each code.

Coherence Between Evaluations and Confrontations. To evaluate coherence between children's evaluation of discrimination and their confrontation, we examined the extent to which children's evaluations of discrimination were associated with their confrontation. For all analyses involving confrontation, we used generalized linear

Table 1Confrontation of Discrimination Messages

Category	Examples	Pilot (%)	Full study (%)
Race-based confrontation	"He should choose some White people and some Black people next time he's asked to make a decision."	22.22	29.37
	"Please stop being racist. But wait, not a single Black kid in the chosen and not a single white kid in the not chosen. That's messed up."		
Exclusion-based confrontation	"You should probably play with the other kids after you play with those kids." "If you could choose more than one kids, why did you only choose a few? Like because you don't know them. So some of the kids you choose could be mean. So why didn't you just invite all of them, all of the kids if that was possible."	7.41	11.11
Positive feedback	"They were good choices." "Can you call Morki? I want to ask her to be my best friend."	18.52	9.52
Irrelevant/un-codable	"I like soccer and I have soccer cleats too." "You should've got them by age."	12.96	3.17
No message	"No." "Umno."	38.89	46.83

models with the binomial family for the logit link function because the outcomes were dichotomous. We regressed confrontation on evaluation of discrimination. When participants provided more negative evaluations of discrimination (i.e., had lower evaluation scores), they were more likely to confront discriminatory behavior, b = -0.25, SE = 0.08, $\chi^2(1) = 11.58$, p < .001, OR = 0.78.

Age Effects

Children's evaluation of discrimination scores were regressed on their age in months. As predicted, children's scores indicated that with age, they were marginally less likely to approve of Morki's choices, t(52) = -1.77, p = .08, $\eta_p^2 = 0.06$. Next, we regressed confrontation on child age in months. The effect of age on confronting discrimination was significant, b = 0.05, SE = 0.03, $\chi^2(1) = 3.85$, p = .049; the odds of confronting discrimination increased by a factor of 1.05 for every month increase in age.

Interim Discussion

The pilot study provided promising evidence that our task could be useful for evaluating children's condemnation and confrontation of discriminatory behavior. Children's scores across trials on the evaluation of discrimination component were reliable, and there was ample variability in children's evaluations and confrontation of discriminatory behavior. Moreover, children's evaluations of discrimination related to whether they confronted the discriminatory behavior. Finally, we found suggestive evidence that children's condemnation of discrimination and confrontation of discrimination increased with age, at least between 5 and 7 years old.

Full Study

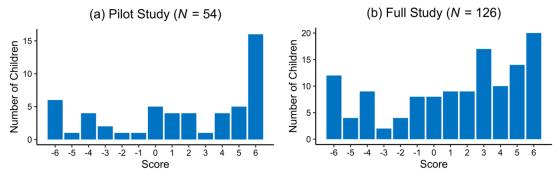
The results from our pilot study laid the foundation for a more thorough evaluation of children's reactions to discrimination in the full study. In the full study, we included a broader age range; evaluated effects due to participant race, exposure to diversity, and parent-reported racial socialization; and considered how children's evaluation and confrontation of discrimination related to children's racial attitudes and rectification of resource inequality.

Method

Participants

Based on age effects on the Resource Allocation Task reviewed in the introduction (Elenbaas et al., 2016), we predicted an age effect

Figure 2
Frequency Plot of Children's Evaluation of Discrimination



Note. Panel (a) depicts children's scores in the pilot study; panel (b) depicts children's scores in the full study. Higher scores indicate more approval of discrimination. See the online article for the color version of the figure.

size of $\eta_p^2=0.10$. Given that we did not have data on which to base our other hypotheses, we predicted a medium effect ($\eta_p^2=0.06$) for all other effects. These considerations suggested a sample of 126 participants needed to evaluate the linear models, and a sample of 61 participants needed to evaluate the correlational effects.

Participants were recruited through databases of interested participants maintained by a child development laboratory located in the upper Midwestern region of the United States (n=111); from EmbraceRace, a national non-profit organization (n=13); and from Prolific, an online data collection service (n=2). We collected data from participants until we reached 126 non-excluded participants with equal numbers in each racial group (Asian, Latinx, and White). Eight additional participants were excluded for the following reasons: not proficient in English (n=2), completed the study on a cell phone and could not see all of the stimuli (n=4), participant did not wish to complete study (n=1), and experimenter error (n=1).

The final sample included 126 (56 girls, 70 boys) 4–10-year-old Asian, Latinx, and White children ($M_{\rm age} = 7.46$ years, SD = 1.81 years; $n = 42/{\rm racial}$ group). All Asian and White participants were monoracial, meaning that parents indicated only one racial category for their child on a demographic form. Parents of all Latinx participants included in the study selected that their children were Hispanic or Latinx and did *not* select that they were Black. The median annual household income range for participants' families was \$120,001–125,000.

Materials, Design, and Procedure

As in the pilot study, children were recruited for an online study and participated over Zoom. An Asian, Latinx, or White experimenter conducted the study sessions; the race of the experimenter did not always match the race of the participant (experimenter race for each session is available in the datafile provided on OSF). Children first completed the Reactions to Discrimination Task described in the pilot study. They then completed the racial attitude measure and the Resource Allocation Task in a randomly determined order. The photographs shown for each measure were normed by adult participants for perceived age, attractiveness, and race. Details about the photograph norming process are available on OSF. Each measure used unique photographs, with no photographs repeating across measures. Children only ever saw photographs of children who matched their own gender.

Reactions to Racial Discrimination. The Reactions to Racial Discrimination task was the same as the measure used in the pilot study where children saw a racial in-group member including three racial in-group members and excluding three Black children. To standardize the similarity between the participant and the targets, Asian children saw an Asian child choosing only Asian peers, Latinx children saw a Latinx child choosing only Latinx peers, and White children saw a White child choosing only White peers. Scoring and coding for the measure were the same as in the pilot study.

Racial Attitudes Measure. We adapted a common measure of children's racial attitudes for use over Zoom (e.g., Rae & Olson, 2018; Shutts et al., 2013). Children saw six unique trials featuring photographs of two children's faces; one face appeared on a green background (one side of screen) and the other face appeared on a blue background (other side of screen). Within each pair, one

child was Black and one child matched the participant's race. The two photographs within each trial were approximately matched for attractiveness, age, and positivity of facial expression. On each trial, children were asked "Who would you like to be friends with?" They indicated their responses by naming the color behind the chosen photographs (i.e., green or blue) or by saying "both" if they wanted to be friends with both children.

Across participants we varied the order in which photographs appeared in the task as well as the lateral position of the photographs on each trial. Each child saw a Black child on the left-hand side of the screen for half of trials and a blue rectangle on the left-hand side of the screen for half of the trials; rectangle color and target race were uncorrelated across trials. Choosing the child who matched the participant's race was scored as 1; choosing both was scored as 0; and choosing the child who was Black was scored as -1. Scores were summed across trials and could range from -6 to 6.

Resource Allocation Task. This measure was adapted from the paradigm described in the introduction to examine children's responses to unequal resource distributions in intergroup contexts (Elenbaas et al., 2016; Olson et al., 2011). At the start of the task, participants were told that they were going to watch how another child had given out different things (coins, balloons, lollipops, toy dinosaurs, stickers, and bouncy balls) to kids earlier in the day. The six trials each comprised of a learning phase and a test phase. For the learning phase, participants watched three cases in which a Black child received one item and a child who matched the participant's race received two items; the photographs used in the three instances were new each time. For the test phase, participants were allowed to distribute three items that matched the type involved in the learning phase distributions. Participants saw a new pair of photographs (one Black child and one child who matched the participant's race) and were told that they could give each item to either child or could discard the item. As in the attitudes measure, participants indicated their distribution choices by saying the color (blue, green) on which each child appeared; participants also saw a blank yellow rectangle on the screen and were instructed to say "yellow" if they wanted to discard a resource.

Across participants we varied the order of the learning trials, the order of the photographs within test trials, the lateral positions of the photographs within each trial, and the order of the resource types that were being distributed. Each participant saw a Black child on the left-hand side of the screen for half of the displays and a green rectangle on the left-hand side of the screen for half of the displays. Choosing to give a resource to a child who matched the participant's race was scored as 1; discarding a resource was scored as 0; and choosing to give a resource to a Black child was scored as -1. Scores were summed across trials and could range from -18 to 18.

Parent-Reported Measures

Exposure to Diversity. To capture the racial diversity of children's environments, we used two metrics: (a) We consulted publicly available data about the racial diversity of the area where the child participant principally resided (for previous uses of this method, see Hwang et al., 2021; Mandalaywala et al., 2019). We used the R package "tidycensus" to interface with ZIP code-level data from the U.S. Census Bureau. (b) As in prior research (Burke et al., 2020; Perry et al., 2019), we asked parents to report race/ethnicity information for their child's frequent social contacts. Parents were

asked to list (initials only) all of the people who lived with their child and up to 10 people with whom their child spent a significant amount of time. Then, parents were asked to report the race/ethnicity of each reported individual (for a similar approach, see Carter et al., 2019; Smith, 2002). For both metrics, we focused specifically on the proportion of people in the child's environment who were Black.

Parent-Racial Socialization. We utilized an existing measure of parent-racial socialization (Perry et al., 2019). Parents responded to three open-ended questions about their racial socialization practices: (a) "What would you say if your child asked you about race?" (b) "What would you say to your child if you witnessed together an incident in which someone experienced prejudice due to their race?" and (c) "Describe how you have discussed recent current events related to race, such as events related to George Floyd, Breonna Taylor, or Black Lives Matter, with your child. If you have not discussed them, describe why you chose not to do so." The third question was adapted slightly from the original measure to reference more current recent events (i.e., George Floyd, Breonna Taylor, and Black Lives Matter replaced Trayvon Martin, Michael Brown, and the Charleston shooting).

Two independent trained researchers coded participant responses. Following Perry et al.'s (2019)) coding scheme, responses to each question were coded independently for acknowledgement of racism ($\kappa=0.75$) on a scale of 0 (does not acknowledge racism), 1 (subtly acknowledges racism), or 2 (overtly acknowledges racism), and for denial of racism ($\kappa=0.86$) on a scale of 0 (does not deny racism), 1 (subtly denies the reality of racism), or 2 (blatantly denies the reality of racism). Scores were summed across the three questions to provide an overall score with a potential range of 0–6. Across questions, only four responses indicated denial of racism. Given the scarcity of the response, we did not further consider this code.

The acknowledgement and denial codes on the first two questions in Perry and colleagues' measure capture what parents *would* do in particular situations. However, this does not necessarily capture whether parents have discussed race or racism with their children, to date. Given that parents' prior conversations would likely have more impact on their children's current responses, we also coded whether parents reported in any of the three open-ended responses that they had already discussed race or racism with their children ($\kappa = 0.88$).

Results

Reactions to Racial Discrimination

Descriptive Information

Evaluation of Discrimination. As in the pilot study, we first examined descriptive statistics for children's evaluation of discrimination. Once again, children's responses to the six trials were highly reliable ($\alpha=0.85$), and children used the full range of the measure (see Figure 2b). Children had a mean score of 1.25 (SD=3.95) on evaluations of discrimination and were significantly more likely to approve of Morki's choices than to disapprove of Morki's choices; comparison to chance (0): t(125)=3.57, p<.001, $\eta_p^2=0.09$. As in the pilot study, we coded participants' explanations for their evaluations according to whether they provided race-related explanations, exclusion-related explanations, or no real explanation for their evaluations ($\kappa=0.99$). For children who were asked to explain a negative evaluation (n=74), 43.24% of participants provided race-related

explanations, 18.92% of participants provided exclusion-related explanations, and 37.84% of participants provided no real explanation for their evaluations. For children asked about a "shrug" response (n=32), 12.50% of participants provided race-related explanations for their evaluation, 3.13% of participants provided exclusion-related explanations, and 84.38% of participants provided no real explanation for their evaluations. Finally, for children asked to explain a positive evaluation (n=20), 15.00% of participants provided race-related explanations for their approval and 87.50% of participants provided no real explanation for their evaluations.

Confrontation of Discrimination. Participants once again provided a wide array of confrontation responses (see Table 1 for example).

Coherence Between Responses. Using the same analysis strategy from the pilot study, we evaluated the coherence between children's evaluation of discrimination and confrontation. Once again, participants whose evaluations of discrimination were less approving of discriminatory behavior were more likely to confront the discriminatory behavior, b = -0.30, SE = 0.06, $\chi^2(1) = 33.08$, p < .001, OR = 0.74.

Predictors of Reactions to Discrimination

Age Effects. We predicted that older children would be less likely than younger children to approve of and confront discrimination. These analyses used the same approach as in our pilot study. Children expressed less approval with age, t(124) = -4.04, p < .001, $\eta_p^2 = 0.12$. Similarly, the effect of age on confrontation was significant, b = 0.07, SE = 0.01, $\chi^2(1) = 45.38$, p < .001; the odds of confronting discrimination enacted by Morki increased by a factor of 1.07 for every month increase in age (see Figure 3).

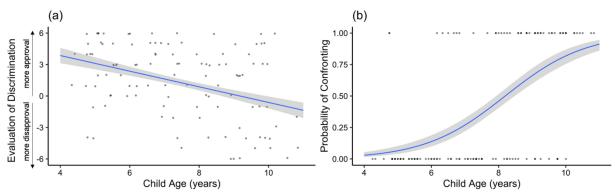
Participant Race. Following our preregistered analysis plan, we created two dummy contrasts to represent Asian, Latinx, and White children, with White children as the reference group. In a linear model, we regressed children's evaluations of discrimination on participant race. Neither Asian, b = -0.36, t(123) = -0.42, p = .68, nor Latinx, b = 0.90, t(123) = 1.05, p = .30, children differed from White children in their evaluation of discrimination (see Figure 4). Next, we regressed confrontation on participant race. There was no effect of race on confrontation, $\chi^2(1) = 1.38$, p = .50.

Exposure to Diversity. We predicted that children would evaluate discrimination more negatively and be more likely to confront discrimination if they had more exposure to diversity. In our preregistration, we stated that we would evaluate whether our two measures of racial diversity were correlated at r = 0.70 or higher and, if so, standardize the measures. However, parents of participants in our sample reported that almost none of their child's frequent social contacts were Black; only 11 parents reported any close contacts or members of the household whom they identified as Black. As such, we only considered the proportion of Black people within the child's ZIP code in analyses. Contrary to our hypothesis, participants who had a higher proportion of Black people in their ZIP code were more likely to approve of discriminatory behavior, t(122) =2.20, p = .03, $\eta_p^2 = 0.04$. Diversity exposure was not related to confrontation of discrimination, b = 0.09, SE = 2.59, $\chi^2(1) = 0.001$, p = .97.

Parent Socialization

Acknowledgement of Racism. We first regressed parents' acknowledgement of racism on children's evaluation of

Figure 3Age Effects on Reactions to Discrimination



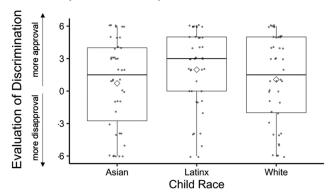
Note. Panels (a) and (b) depict the effect of participant age on children's evaluation of discrimination and confrontation of discrimination on the reactions to discrimination measure. All analyses included age as a continuous predictor using child age in months. See the online article for the color version of the figure.

discrimination. Children were marginally less likely to approve of discrimination when parents acknowledged racism more, t(122) = -1.85, p = .07, $\eta_p^2 = 0.03$. We then regressed children's confrontation on parents' acknowledgement of racism. Parents' acknowledgement of racism was not related to confrontation of discrimination, b = -0.06, SE = 0.09, $\chi^2(1) = 0.48$, p = .49.

Talking About Race or Racism. Next, we evaluated the extent to which talking about race or racism related to children's evaluation of discrimination and confrontation on the reactions to discrimination measure. When parents reported that they had already talked to their children about race or racism, their children were much less likely to approve of discrimination, t(122) = -3.83, p < .001, $\eta_p^2 = 0.11$. However, talking about race did not relate to children's confrontation of discrimination, b = 0.38, SE = 0.37, $\chi^2(1) = 1.05$, p = .30.

One might wonder whether the effects of parent-racial socialization on children's reactions to discrimination were just capturing an age effect as an artifact of parents being more likely to discuss race as children aged. Refuting this possibility, child age was not correlated

Figure 4
Evaluation of Discrimination by Child Race



Note. The horizontal line depicts the median score and the diamond depicts the mean score for each racial group.

with either parents' acknowledgement of racism (r = -.15, p = .22) or parents' discussions about race or racism (r = -.02, p = .80).

Relation to Other Measures

We evaluated the correlations between children's evaluation of discrimination, their racial attitudes, and their resource allocation. Children's evaluations of discrimination were moderately correlated with both racial attitudes (r = .30) and resource allocation (r = .26). An analysis of the paired correlations using the psych package in R indicated that the strength of the correlations with evaluations of discrimination did not differ between racial attitudes and resource allocation (z = 0.34, p = .73). Next, we examined the extent to which racial attitudes or resource allocation were associated with children's confrontation of discrimination. Both children's racial attitudes, b = -0.04, SE = 0.01, $\chi^2(1) = 7.20$, p = .007, and resource allocations, b = -0.03, SE = 0.01, $\chi^2(1) = 7.80$, p = .005, were associated with children's confrontation of discrimination, such that lower levels of in-group bias were associated with increases in the likelihood of confronting the protagonist.

Finally, we evaluated the extent to which racial attitudes and resource allocations were related to confrontation of discrimination, over and above children's evaluations of discrimination. We fit a generalized linear model regressing confrontation on evaluations of discrimination, racial attitudes, and resource allocation. When controlling for each other measure, children's confrontation of discrimination was associated with their evaluation of discrimination, b = -0.06, SE = 0.01, $\chi^2(1) = 33.08$, p < .001, but not with their racial attitudes, b = -0.008, SE = 0.01, $\chi^2(1) = 0.26$, p = .61, and resource allocation behavior, b = -0.01, SE = 0.01, $\chi^2(1) = 1.26$, p = .26.

Discussion

Two questions guided the present work: How would children evaluate another child's discriminatory behavior when the behavior

² In exploratory analyses evaluating the effects of parent-racial socialization controlling for child age, all effects reported above remained the same. See the additional materials online (https://osf.io/rhzp7/?view_only=38fcc5513665497684e9aae37a4234e4) for detailed analyses.

was not labeled as exclusion or discrimination? And, if given the chance, would children confront such instances of racial discrimination? In both cases, we found that the answer depended on children's age. Consistent with our hypotheses, older children were more likely than younger children to negatively evaluate and confront another child's discriminatory behavior.

Our findings reveal impressive and important capacities on the part of older children. In prior research focused on children's reactions to race-based exclusion (Killen et al., 2001; Killen & Stangor, 2001; Møller & Tenenbaum, 2011; Theimer et al., 2001), experimenters have explicitly highlighted acts of exclusion, drawn participants' attention to race, and directly asked children to comment on the acceptability of the exclusion event (e.g., "Is it right or wrong to exclude the Black child?"). We provided no such scaffolding in the Reactions to Discrimination task—yet the modal response on the part of children over 8 years of age in our sample was to negatively evaluate and confront the protagonist's racial exclusion. The responses we observed among older children in our sample are promising for children's potential to regulate their peers' behaviors in the real world because instances of racially biased behavior occur in spaces populated by children (e.g., at school, on the playground), often out of view of adults who can monitor and describe the behavior (Brown, 2006; Pachter, Szalacha, et al., 2010).

Although negative evaluation and confrontation of discrimination was the modal response by 8 years of age, younger children in our sample were much less likely to negatively evaluate or confront another child's discriminatory behavior on the Reactions to Discrimination task. In prior research probing children's evaluations of intergroup exclusion (Group Exclusion Evaluation Task), children across our age range have disapproved of discrimination (see Killen et al., 2001; Killen & Stangor, 2001; Møller & Tenenbaum, 2011; Theimer et al., 2001). What accounts for this discrepancy? One compelling possibility is that younger children found it difficult to recognize that race-based exclusion had occurred in the Reactions to Discrimination Task. Our task required participants to detect the occurrence of racial discrimination on their own, which could be challenging for younger children who have difficulty both with detecting patterns (Papic et al., 2011; Warren & Cooper, 2006) and with spontaneously encoding unfamiliar individuals' race (though even infants are sensitive to visual markers of race; Waxman & Grace, 2012; Weisman et al., 2015). In future work, it would be useful to directly assess children's perceptions of events in the Reaction to Discrimination Task and evaluate whether providing more scaffolding (e.g., labeling characters' race, using the word "exclusion") would affect young children's responses to the task.

Beyond child age, we found that parent socialization was correlated with children's responses in the Reactions to Discrimination Task. Children whose parents reported higher levels of racial socialization were more likely to negatively evaluate another child's discriminatory behavior. There are multiple ways that parents' racial socialization could have affected children's evaluation responses in our Reactions to Discrimination task. For example, parent—child conversations about race and racism likely involve highlighting racial categories (e.g., using racial labels, pointing out other people's race). Such behaviors could lead children to be more attuned to race information in social contexts, including the situations presented to children in the Reactions to Discrimination task. Additionally, parent—child conversations about race and racism may involve parents instructing their children that unfair treatment on the basis of race

is objectionable—and such instruction could lead children to judge race-based social exclusion as wrong. Future research could collect more detailed information about parents' socialization strategies (e.g., see Sullivan et al., 2021) to illuminate which behaviors correlate with children's tendency to negatively evaluate racial exclusion. Such work could be complemented by experimental research manipulating the content of parents' race-related conversations with their children to reveal causal effects of parent-racial socialization on children's evaluations of racial discrimination.

In contrast to the observed association between parents' racial socialization and children's evaluations of discrimination, parents' racial socialization was unrelated to children's confrontations of discrimination. One possibility is that parents' discussions of race with their children lack specific guidance on confronting racial discrimination, leaving children unprepared for disrupting discrimination in everyday settings. To our knowledge, no research has explicitly probed whether and how parents encourage children to stand up to discrimination, and our parent socialization measure in the present study likewise did not probe for such information. Studying how parents promote—or could promote—standing up to bias with their children is a critical future direction for the field, especially amidst calls for understanding the development of anti-racism in children (Cooper et al., 2022). As parents are unlikely to be the only influence on children's reactions to discrimination, future research should also study the potential for other people (e.g., teachers, peers), as well as the role of different cognitive processes (e.g., perspective-taking), in guiding children's evaluation and confrontation of discrimination.

Although our current research provides novel insight into children's evaluations and confrontations of discrimination, several questions were beyond the scope of the present methodology. First, the context in which children evaluated and confronted discriminatory behavior differed significantly from real life scenarios. In our study, children were exposed to a fictional character excluding fictional children, and children's confrontations were indirect (i.e., sent through the experimenter to the perpetrator of discrimination). Ultimately, in order to understand and improve the experiences of those targeted by racial discrimination outside of a laboratory setting, it will be necessary to evaluate the extent to which our findings generalize to everyday settings that may require directly confronting a familiar peer or seeking the help of an adult to address discriminatory behavior. It is unclear whether our findings would generalize to real world settings that have many additional complexities including social pressure or former knowledge of the perpetrator and targets of discrimination. Future research should implement evaluations with more ecological validity and studies in field settings to investigate children's reactions to discrimination in their actual social ecologies.

Second, contrary to our hypotheses, participant race did not affect responses on the Reaction to Discrimination measure. Reasoning that Asian and Latinx children may have experienced discrimination themselves, we predicted they (relative to White children) might be more attuned to and more inclined to negatively evaluate and confront racial discrimination. Although Asian and Latinx people on average experience more discrimination than White people (Dulin-Keita et al., 2011; Pachter, Bernstein, et al., 2010), children in our sample may not have experienced discrimination themselves (or may have experienced discrimination, but been unaware of it). Alternatively, experiencing discrimination may not affect children's reactions to discrimination. For example, children may find it

difficult to recognize in the moment how their own experiences are akin to those being targeted by discrimination. In future research, it will be critical to directly measure children's experiences with discrimination and evaluate whether being a target of discrimination leads children to negatively evaluate and confront discrimination. Furthermore, it is certainly not the case that Black children are the only targets of discrimination (Dulin-Keita et al., 2011; Lei & Rhodes, 2021; Marcelo & Yates, 2019). As such, it will be important to extend the current work to evaluate exclusion of other racial groups, including children's own racial group.

Finally, we anticipated that exposure to diversity and intergroup contact would affect children's reactions to discrimination given prior research showing that exposure to diversity increases children's ability to notice racial groups (Lam et al., 2011; Pauker et al., 2016) and is related to decreases in children's racial biases. Unfortunately, the patterns we observed in the present study are difficult to interpret because most participants in our sample had zero close relationships with Black people, prohibiting the evaluation of close contact diversity. Contrary to expectations, we found that the proportion of Black people in children's zip code area was inversely related to children's negative evaluations of discrimination. It is possible that diversity in a child's community adversely impacts children's reactions to discrimination. This explanation would align with research in the adult prejudice literature where increasing exposure to diversity can heighten feelings of intergroup threat and, as a result, intergroup prejudice (Bobo & Kluegel, 1993; Craig et al., 2018). Although these possibilities are speculative, at minimum, our data suggest that community-level diversity does not necessarily lead to close cross-race relationships for children (Paluck et al., 2019) and that having ambient exposure to Black individuals does not promote negative evaluations and confrontations of discrimination in children. In future research, it would be important to recruit a sample in which there is significant variation in close contact diversity to examine whether children's close or meaningful contact with Black people would increase confrontations of discrimination toward Black people.

Concluding Remarks

Children's ability to confront discrimination provides important insight into how children can serve as agents of change in their own social worlds. In a recent theoretical model, Hazelbaker et al. (2022; see also Aldana et al., 2019) predicted that children may be able to engage in anti-racism through interpersonal action (e.g., confronting individuals' discriminatory behaviors) prior to engaging in collective action to address structural inequities. Our results provide some support for the notion that children—especially those 8 years and older—could be capable of interpersonal anti-racism. Future research will be needed to evaluate the implications of these foundational anti-racist behaviors in childhood—including how best to promote their development.

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