



The effect of group status on children's hierarchy-reinforcing beliefs

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Abstract

Members of advantaged groups are more likely than members of disadvantaged groups to think, feel, and behave in ways that reinforce their group's position within the hierarchy. This study examined how children's status within a group-based hierarchy shapes their beliefs about the hierarchy and the groups that comprise it in ways that reinforce the hierarchy. To do this, we randomly assigned children (4–8 years; $N = 123$; 75 female, 48 male; 21 Asian, 9 Black, 21 Latino/a, 1 Middle-Eastern/North-African, 14 multiracial, 41 White, 16 not-specified) to novel groups that differed in social status (advantaged, disadvantaged, neutral third-party) and assessed their beliefs about the hierarchy. Across five separate assessments, advantaged-group children were more likely to judge the hierarchy to be fair, generalizable, and wrong to challenge and were more likely to hold biased intergroup attitudes and exclude disadvantaged group members. In addition, with age, children in both the advantaged- and disadvantaged-groups became more likely to see membership in their own group as inherited, while at the same time expecting group-relevant behaviors to be determined more by the environment. With age, children also judged the hierarchy to be more unfair and expected the hierarchy to generalize across contexts. These findings provide novel insights into how children's position within hierarchies can contribute to the formation of hierarchy-reinforcing beliefs.

KEYWORDS

hierarchy-reinforcing, social development, social hierarchies, social status

Research Highlights

- A total of 123 4–8-year-olds were assigned to advantaged, disadvantaged, and third-party groups within a hierarchy and were assessed on seven hierarchy-reinforcing beliefs about the hierarchy.
- Advantaged children were more likely to say the hierarchy was fair, generalizable, and wrong to challenge and to hold intergroup biases favoring advantaged group members.

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- With age, advantaged- and disadvantaged-group children held more essentialist beliefs about membership in their own group, but not the behaviors associated with their group.
- Results suggest that advantaged group status can shape how children perceive and respond to the hierarchies they are embedded within.

1 | INTRODUCTION

Social hierarchies are pervasive throughout the world and members of advantaged groups are more likely than members of disadvantaged groups to think, feel, and behave in ways that reinforce their group's position in the hierarchy (Anderson et al., 2020; Mahalingam, 2007; Roberts & Rizzo, 2021; Sidanius et al., 2017). Yet the psychological processes underlying the formation of hierarchy-reinforcing beliefs in childhood remain unclear (Elenbaas et al., 2020; Rhodes, 2020). The present study aimed to identify a novel mechanism that may contribute to the formation of hierarchy-reinforcing beliefs during childhood: advantaged status within that hierarchy. To do this, we randomly assigned children to be a member of an advantaged or disadvantaged group, or to be a neutral third-party, and tested whether this group assignment predicted children's endorsement of different hierarchy-reinforcing beliefs including their fairness beliefs (i.e., that the hierarchy is fair), normative beliefs (i.e., that the hierarchy is generalizable and wrong to challenge), essentialist beliefs (i.e., that advantaged group "essence" and behaviors are innately determined), and intergroup biases (i.e., viewing disadvantaged group members less positively and excluding them from opportunities). Overall, our research suggests that being advantaged by a hierarchy leads to the formation of beliefs and attitudes that reinforce that hierarchy beginning in childhood.

Children's awareness of social hierarchies begins early in life; infants and toddlers can distinguish between "dominant" and "subordinate" individuals (Mascaro & Csibra, 2012; Terrizzi et al., 2019; Thomas et al., 2018). By 4–5 years old, children use a range of social and contextual cues to make inferences about social power (e.g., who achieves their goals, controls resources; Brey & Shutts, 2015; Gülgöz & Gelman, 2017; Hazelbaker et al., 2018; Hussak & Cimpian, 2015). Importantly, young children are also aware of the group-based hierarchies in the world around them (Elenbaas et al., 2020; Shutts, 2015). For example, by 4–5 years, Black, White, and multiracial children in the US and South Africa often associate White people with wealth and Black people with poverty (Olson et al., 2012; Shutts et al., 2016; Rizzo et al., 2022) and boys and girls often endorse gender stereotypes that reinforce gender hierarchies (Bian et al., 2017; Liben et al., 2001). Simply put, even young children are aware of the social hierarchies that they are embedded in. It is therefore important to understand the beliefs that children form about these hierarchies and how children's position within a hierarchy can lead them to form beliefs that reinforce—rather than rectify or disrupt—that hierarchy.

1.1 | The effect of group status

Several theories in social psychology have posited explanations for why advantaged group members are more likely to reinforce hierarchies than disadvantaged group members, including a desire to maintain a hierarchical societal structure (Sidanius et al., 2017), motivational differences to achieve high-status positions (Anderson et al., 2020), an attempt to justify existing social hierarchies (Mahalingam, 2007; Jost et al., 2004), as a means of enhancing one's self-esteem (Tajfel & Turner, 1979), and contextual differences in how the hierarchy enables or constrains members of advantaged and disadvantaged groups' thoughts and actions (Kraus et al., 2010, 2012). Illuminating how these effects emerge during childhood is important for understanding the developmental origins of hierarchy-reinforcing beliefs and the role of status in their formation (also see Hussak & Cimpian, 2015).

Children in advantaged groups are also more likely than children in disadvantaged groups to develop biases and perpetuate resource inequalities between both novel and real-world groups (e.g., gender, school group), suggesting that children's position within a hierarchy can shape how they *respond* in social contexts (Bigler et al., 2003; Blake et al., 2015; Elenbaas et al., 2016; Horwitz et al., 2014; Nesdale & Flessner, 2001; Rizzo & Killen, 2018, 2020; Roberts et al., 2020b). Yet it is not clear whether these experiences influence the *beliefs* that children develop about hierarchies themselves, such as whether they are fair, normative, or rooted in inherent differences between groups. Understanding how these beliefs form is important because, as illustrated below, they can lead children to further reinforce harmful social hierarchies and perpetuate biases, prejudices, and discrimination that marginalize members of disadvantaged groups (Seaton & Douglass, 2014; Sellers et al., 2006; Umaña-Taylor, 2016).

1.2 | The emergence of hierarchy-reinforcing beliefs

Beliefs about fairness, normativity, essentialism, and intergroup biases can all shape how children and adults perceive and respond to social hierarchies (Bastian & Haslam, 2006; Elenbaas et al., 2020; Ho et al., 2015; Rhodes & Mandalaywala, 2017). In the present study, we assessed several of these beliefs to provide a broad overview of how children's status within a hierarchy is related to several, distinct beliefs



and attitudes that are known to influence their decisions to rectify or perpetuate social hierarchies.

1.2.1 | Fairness beliefs

Children begin to recognize that straightforward resource inequalities are unfair by 3–4 years old and become increasingly likely to identify the wrongfulness of more complicated forms of inequality throughout childhood (Rizzo & Killen, 2016; Rizzo et al., 2020; Shaw & Olson, 2012). Importantly, believing that an inequality is unfair can lead children to challenge it, whereas believing that an inequality is fair often leads children to perpetuate it. For example, children who judge an inequality to be unfair often give additional resources to disadvantaged recipients, whereas children who judge an inequality to be fair often give more resources to already advantaged recipients (Elenbaas, et al., 2020; Rizzo et al., 2020; Rizzo & Killen, 2020; but see Smith et al., 2013). In the present study, we examined whether children who are advantaged by a hierarchy are more likely to judge it as fair compared to children who are given the same information about the hierarchy but are disadvantaged by or neutral third-parties to it.

1.2.2 | Normative beliefs

Normalizing a hierarchy—believing that it reflects what *is* and what *should be*—can also lead children to reinforce it. Two key features of children's normative beliefs are the extent to which they view a norm—including the norms governing social hierarchies—as generalizable (i.e., apply to all members of a group) and prescriptive (i.e., wrong to challenge; Rakoczy & Schmidt, 2013; Roberts, 2021; Killen & Rutland, 2013). In non-hierarchical contexts, children as young as 3–4 years old routinely infer that even simple actions normatively apply to all group members and the tendency to punish those who challenge the status quo is evident throughout childhood (Schmidt et al., 2016; Roberts, 2021).

While viewing norms as generalizable and prescriptive may be beneficial for children in some contexts (Tomasello, 2014), holding these beliefs about social hierarchies can have problematic, hierarchy-reinforcing consequences by leading children to deny heterogeneity within groups and punishing people who attempt to disrupt the hierarchy (e.g., censuring Black people who “act White” or women who “act masculine”; Durkee et al., 2019; Eagly & Karau, 2002). In short, beliefs that a hierarchy exists—and *should* exist—across contexts can lead children to reinforce that hierarchy by punishing advantaged and disadvantaged group members who challenge the hierarchy, thereby reinforcing the stratification of social groups. In the present study, we examined whether children who are advantaged by a hierarchy are more likely to view it as generalizable and wrong to challenge compared to children who are given the same information about the hierarchy but are disadvantaged by or are neutral third-parties to it.

1.2.3 | Essentialist beliefs

Essentializing a hierarchy—believing that someone's position in the hierarchy is defined by an intrinsic “essence”—can lead children to reinforce hierarchies by attributing them to real or natural differences between members of stratified groups (Haslam et al., 2002; Peretz-Lange, 2021; Mahalingam, 2003, 2007; Mandalaywala et al., 2018; Williams & Eberhardt, 2008). Young children's essentialist beliefs have been assessed using a “Switched-at-Birth” task; children are told about babies from different groups who are switched shortly after birth and are asked (1) whether the babies will be like their birth or adoptive parents “deep down” and (2) whether the babies will “act like” their birth or adoptive parents when they're all grown up (Mandalaywala et al., 2018; Taylor et al., 2009). By around 5 years old, children start believing that babies will share internal properties (i.e., who they are “deep down”) with their birth parents and share external/behavioral properties (i.e., “acting like”) their adoptive parents—a pattern referred to as a differentiated understanding (Birnbaum et al., 2010; Hirschfeld, 1995; Kinzler & Dautel, 2012; Mahalingam, 2003, 2007; Taylor et al., 2009). Yet there is also variation in which groups are essentialized, when groups are essentialized, and individual variation in when specific children begin to develop essentialist beliefs about specific groups (Rhodes & Mandalaywala, 2017).

Importantly, these essentialist beliefs have hierarchy-reinforcing consequences; adults who hold essentialist beliefs are more likely to hold prejudicial attitudes and support discriminatory social policies (Hussak & Cimpian, 2015; Mandalaywala et al., 2018; Roberts et al., 2017c; Williams & Eberhardt, 2008) and 4-year-old, non-Black children who endorse essentialist explanations for racial disparities become more likely to exclude Black peers over time (Rizzo et al., 2022). In the present study, we examined whether children who are advantaged by a hierarchy are more likely to develop essentialist beliefs about advantaged and disadvantaged group members' essences and behaviors compared to children who are given the same information about the hierarchy but are disadvantaged by or neutral third-parties to it.

1.2.4 | Intergroup biases

Lastly, the beliefs and attitudes that children develop about members of advantaged and disadvantaged groups can reinforce hierarchies. Intergroup biases in favor of advantaged groups emerge in early childhood; by as young as 4–5 years old, children often favor wealthy over poor people (Horwitz et al., 2014; Li et al., 2014) and advantaged racial groups over disadvantaged racial groups (Aboud, 2003; Raabe & Beelmann, 2011). When and how social biases form differs by the environment that children are growing up in (e.g., the degree of inequality in children's neighborhoods; Rizzo et al., 2022), the social groups being examined (e.g., minimal groups, gender, race; Dunham et al., 2011; Nesdale et al., 2004; Shutts, 2015)), and children's understanding of the social norms governing intergroup interactions (Abrams et al., 2015; Killen & Rutland, 2013; McGuire et al., 2019; Rutland et al., 2005). In



many cases, however, explicitly negative attitudes towards disadvantaged outgroup members tend to emerge around 3–4 years, peaking around 5–6 years old, whereas children tend to hold explicitly positive attitudes towards members of advantaged groups throughout childhood (Nesdale et al., 2004; Raabe & Beelmann, 2011; Rutland et al., 2005).

Importantly, these biases in turn shape who children perceive as competent and who they choose to include/exclude for various opportunities (Roussos & Dunham, 2016; Shutts et al., 2016; Hitti et al., 2020). For example, Li and colleagues (2014) found that, although 4–5 years old children will initially attempt to rectify an inequality by giving more to disadvantaged recipients, they also develop more positive attitudes towards people who are advantaged by the inequality and end up sharing more with advantaged than disadvantaged recipients after a short delay. Accordingly, children who hold and express intergroup biases that favor advantaged groups reinforce social hierarchies by further privileging advantaged group members and denying disadvantaged group members access to important resources and opportunities (Elenbaas et al., 2020). In the present study, we examined whether children who are advantaged by a hierarchy are more likely to develop attitudinal biases and playmate preferences that further privilege advantaged group members over disadvantaged group members compared to children who are given the same information about the hierarchy but are disadvantaged by or neutral third-parties to it.

Taken together, a series of interrelated hierarchy-reinforcing beliefs emerge early in childhood—often by 4–5 years old—and work together to shape how children think and respond to social hierarchies. What remains unclear is *why* such beliefs emerge to begin with. Here, we explored one potential mechanism—advantaged group status—by assigning children to different positions within a hierarchy (advantaged, disadvantaged, third-party) and testing whether children's position within a hierarchy affects their likelihood of forming these hierarchy-reinforcing beliefs. Importantly, this study allows us to see if advantaged group members are more likely to reinforce the hierarchies that advantage them because of a simple desire for resources, power, or privilege, or if holding an advantaged status also changes the fundamental beliefs children develop about the hierarchy (i.e., whether it is fair, generalizable, wrong to challenge, innately determined).

1.3 | Present research

The goal of this study was to examine how 4–8-year-old children's status within a social hierarchy shapes their beliefs about that hierarchy and the stratified groups that comprise it. To do this, we randomly assigned children to novel groups that varied in social status (advantaged, disadvantaged, neutral third-party) and presented them with three manifestations of a hierarchy (disparities in *Power*, *Discipline*, and *Resources*; presented within subjects in a fixed order; chosen based on past research; Gülgöz & Gelman, 2017; Rizzo & Killen, 2020). Participants then completed a series of assessments adapted from past research to measure their fairness beliefs, normative beliefs, essentialist beliefs, and intergroup biases.

We focused on the emergence and development of these hierarchy-reinforcing beliefs in 4–8-year-old children based on the literature reviewed above suggesting that hierarchy-reinforcing beliefs emerge around 4 years old and develop throughout childhood. By identifying how social status shapes these beliefs as they are first emerging, we aimed to provide novel insights into a developmental mechanism that may contribute to the formation of hierarchy-reinforcing beliefs: advantaged group status within that hierarchy.

We used novel social groups to examine if children's social status during an experimental session is sufficient to elicit the hypothesized effects. Novel groups can elicit strong intergroup beliefs, attitudes, and expectations with even very minimal cues to group membership and have been used extensively in previous research (Baron & Dunham, 2015; Dunham et al., 2011; Master & Walton, 2012; Patterson & Bigler, 2006). For example, Dunham and colleagues (2011) randomly assigned children to wear different colored t-shirts and found that children were more likely to expect peers wearing the same colored shirts to be more prosocial than peers wearing different colored shirts.

Finally, we examined the relative differences in children's responses between the advantaged, disadvantaged, and third-party conditions to assess the directionality of the effects. Specifically, the third-party condition provides a baseline for how children perceive a hierarchy that they are not personally embedded within, and thus their responses are likely not influenced by self-interest. That is, if advantaged children's responses differ from the third-party children's responses, those differences can be attributed to the experience of being advantaged by the hierarchy. We also assessed whether children's responses in each condition differed from a neutral/chance response to assess children's overall perceptions of the hierarchy.

1.4 | Hypotheses

The hypotheses, sample, assessments, procedure, and data analytic approach were preregistered; full data, analysis scripts and the pre-registration for this study are available on OSF: <https://osf.io/3rmep/>. Broadly, we expected that, relative to children in the disadvantaged and neutral third-party conditions, children assigned to the advantaged condition would:

- H1. Judge the hierarchy as more fair.
- H2. Judge the hierarchy as more normative (by viewing it as generalizable and rejecting efforts to challenge it).
- H3. Hold more essentialist beliefs about the hierarchy (by viewing groups' "essence" and behaviors as inheritable).
- H4. Hold more intergroup biases (by reporting liking and wanting to play with members of the disadvantaged group less).

We also expected that, relative to children in the neutral third-party group, children in the disadvantaged condition would judge the hierarchy as more unfair, judge the hierarchy as less normative, hold less essentialist beliefs about the hierarchy, and hold less intergroup bias (see the [Supplemental Materials](#) and preregistration on the



OSF link above for more information on the full set of preregistered hypotheses).

2 | METHOD

2.1 | Participants

Participants were 4–8-year-old children ($N = 123$) recruited from a children's museum in a large city in the Northeastern U.S. Parents identified children's gender (75 female, 48 male) and race/ethnicity (21 Asian, 9 Black, 21 Latino/a, 1 Middle Eastern/North African, 14 multiracial, 41 White, 16 not-specified). Three additional children participated but were not included in the final analyses due to experimenter error ($n = 1$) or inattention to the protocol ($n = 2$). An a priori power analysis revealed that a sample of 120 children was appropriate for testing for small-medium effects ($f = 0.1$) in our models (see data analytic approach below) with acceptable power (0.80) and $\alpha = 0.05$.

2.2 | Procedure

Research assistants interviewed participants in a quiet room within the museum. The protocol was administered on laptop computers using PowerPoint for animations and narrations. The full protocol—including the exact wording for all assessments—is available on OSF: <https://osf.io/3rmep/>. Interviews lasted 8–12 min and participants received a small toy as compensation for participating. The protocol for this study was approved by the IRB at New York University, protocol number: IRB-FY2016-760, title: Conceptual development and social cognition.

2.2.1 | Protocol overview

Apart from their specific group assignment, all participants heard the same vignettes and completed the same assessments, which were presented in a fixed order (see below). Specifically, participants were first assigned to their novel group and introduced to the hierarchy through three vignettes (*Power*, *Discipline*, and *Resources*; modeled after previous research; Gülgöz & Gelman, 2017; Rizzo & Killen, 2020). After each vignette, participants provided their fairness judgment of the events depicted in that specific vignette. Participants then completed the remaining assessments in the following order: *Generalizability Beliefs*, *Prescriptive Beliefs*, *Essentialist Beliefs*, *Intergroup Attitudes*, and *Playmate Preferences*.

Photographs of children who were age- and gender-matched to the participating child and wearing clothing matching their specific group's color were used to depict other advantaged and disadvantaged group members (see Figure 1). The race of the group members was counterbalanced within assessments (Black, White).

2.2.2 | Group assignment

At the onset of the study, participants were introduced to three novel social groups (Flurps, Gorps, Zazzes; Figure 1a) and were told about a special “sorting hat” that could identify which type of kid they were (Figure 1b). Participants were then randomly assigned to one of the groups (Figure 1c), which served as the basis for the experimental conditions (advantaged group, disadvantaged group, neutral third-party group). Which group (Flurps, Gorps, Zazzes) was advantaged/disadvantaged was counterbalanced across versions.

2.2.3 | Introduction to hierarchy

Following the group assignment, participants were presented with three vignettes depicting different manifestations of the hierarchy (*Power*, Figure 1d; *Discipline*, Figure 1e; *Resources*, Figure 1f). Vignettes were presented in a fixed order as follows. In the *Power* vignette, participants were told that advantaged group members were the numerical majority and got to play on the playground equipment first, whereas disadvantaged group members were the numerical minority and had to wait to use the playground equipment. In the *Discipline* vignette, participants were told that advantaged group members could tell jokes in class without getting in trouble, whereas disadvantaged group members got into trouble for telling jokes in class. And in the *Resources* vignette, participants were told that advantaged group members received four tokens from a computer named, “Boss,” whereas disadvantaged group members received 1 token. Participants were reminded of which group they belonged to in each vignette.

2.2.4 | Fairness beliefs

Participants' fairness beliefs were assessed by asking them how fair or unfair they thought each vignette was. Specifically, after the *Power* vignette, participants were asked, “How fair or unfair do you think it is that the [advantaged group] got to play before the [disadvantaged group]?” (Figure 2a). After the *Discipline* vignette, participants were asked, “How fair or unfair do you think it is that the [disadvantaged group] got in trouble and the [advantaged group] didn't?” (Figure 2b). And, after the *Resources* vignette, participants were asked, “How fair or unfair do you think it is that the [advantaged group] got more tokens than the [disadvantaged group]?” (Figure 2c). All responses were scored on a 6-point Likert-type scale (1 = “really unfair,” 6 = “really fair”); the full scale was explained to participants before they indicated their response. The race (Black, White) of the children depicted in the assessment was counterbalanced across vignettes.

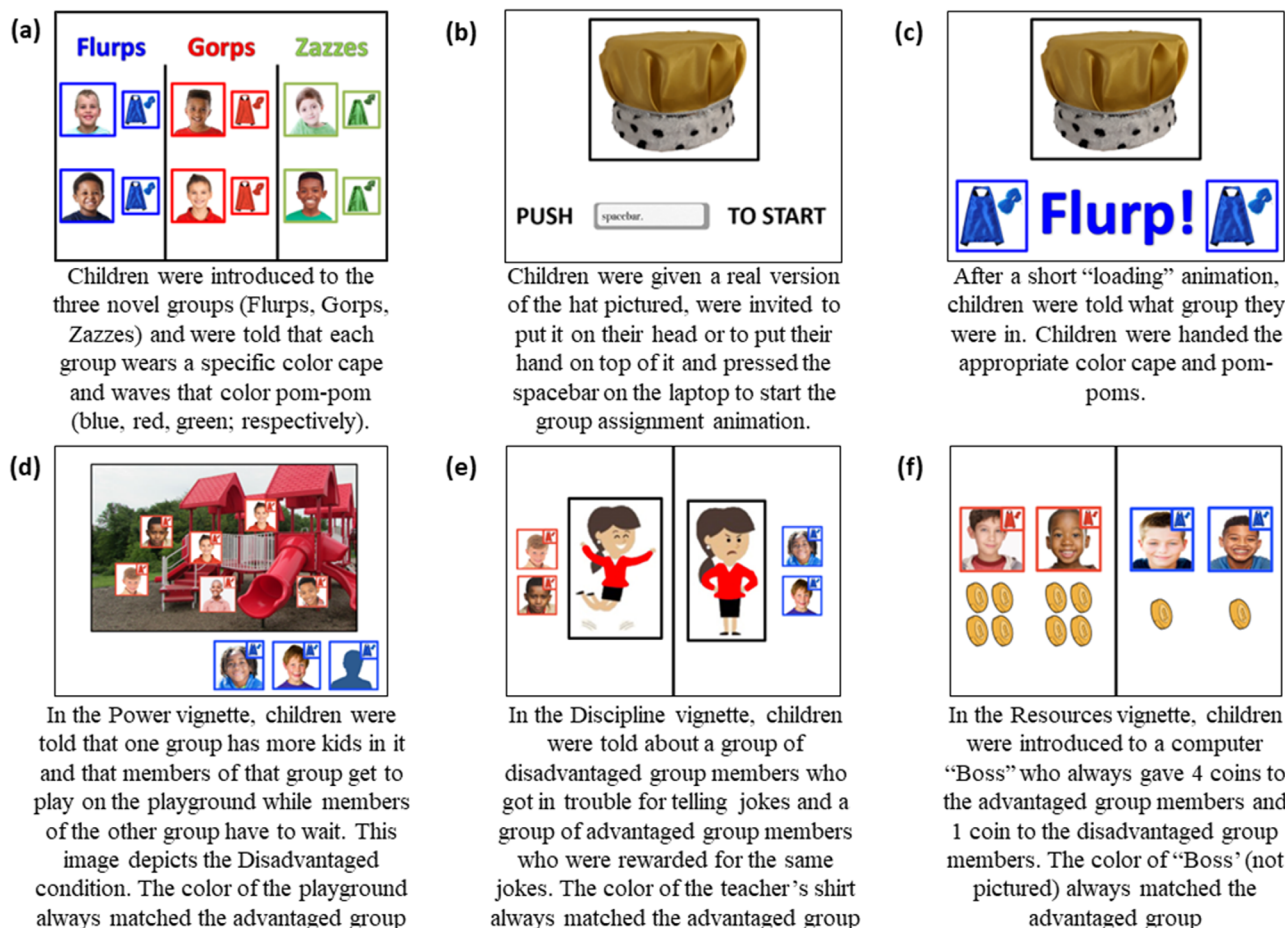


FIGURE 1 Sample images from the disadvantaged condition protocol. Members of the third-party group (“Zazzes”) were not mentioned in any of the vignettes or assessments. The images of children used in the assessments were gender matched to the participant and evenly split between Black and White children.

2.2.5 | Normative beliefs

Participants completed two assessments of their normative beliefs about the hierarchy: (1) *Generalizability Beliefs* and (2) *Prescriptive Beliefs*.

Generalizability beliefs

Participants’ beliefs about the generalizability of the hierarchy were assessed by telling them about new advantaged and disadvantaged group members and asking if those new group members would maintain their groups advantaged and disadvantaged positions in contexts mirroring the vignettes above. Specifically, to assess participants’ beliefs about the generalizability of the *power* disparity, participants were told about a new park and new members of the advantaged and disadvantaged groups and were asked, “Who will get to play with whatever they want?” (Figure 2d). To assess participants’ beliefs about the generalizability of the *discipline* disparity, participants were told about a new classroom and new members of the advantaged and disadvantaged groups and were asked, “Who will get into a lot of trouble over silly little things?” (Figure 2e). To assess participants’ beliefs about the generalizability of the *resource* disparity, participants were told about

new members of the advantaged and disadvantaged groups and were asked, “Who has more tokens?” (Figure 2f). For each question, participants were told that they could select either the advantaged group member, the disadvantaged group member, or both. Responses were scored as a 1 if they were consistent with the intergroup hierarchy depicted in the initial vignettes (*Power*: advantaged, *Discipline*: disadvantaged, *Resources*: advantaged), –1 if they were inconsistent with the intergroup hierarchy depicted in the initial vignettes (*Power*: disadvantaged, *Discipline*: advantaged; *Resources*: disadvantaged), and 0 if participants indicated “both.” The race (Black, White) of the children depicted in the assessment was counterbalanced across questions.

Prescriptive beliefs

Participants’ prescriptive beliefs about the hierarchy were assessed by asking them how okay or not okay it would be for members of the advantaged and disadvantaged groups to challenge the hierarchy by doing an activity typically reserved for the other group (assessment adapted from Roberts et al., 2017a, 2017b, 2020a; Figure 2g). For these assessments, participants were told about two novel extensions of the hierarchy (advantaged group members get to sit on comfy chairs and pick which toys to play with first while disadvantaged group members

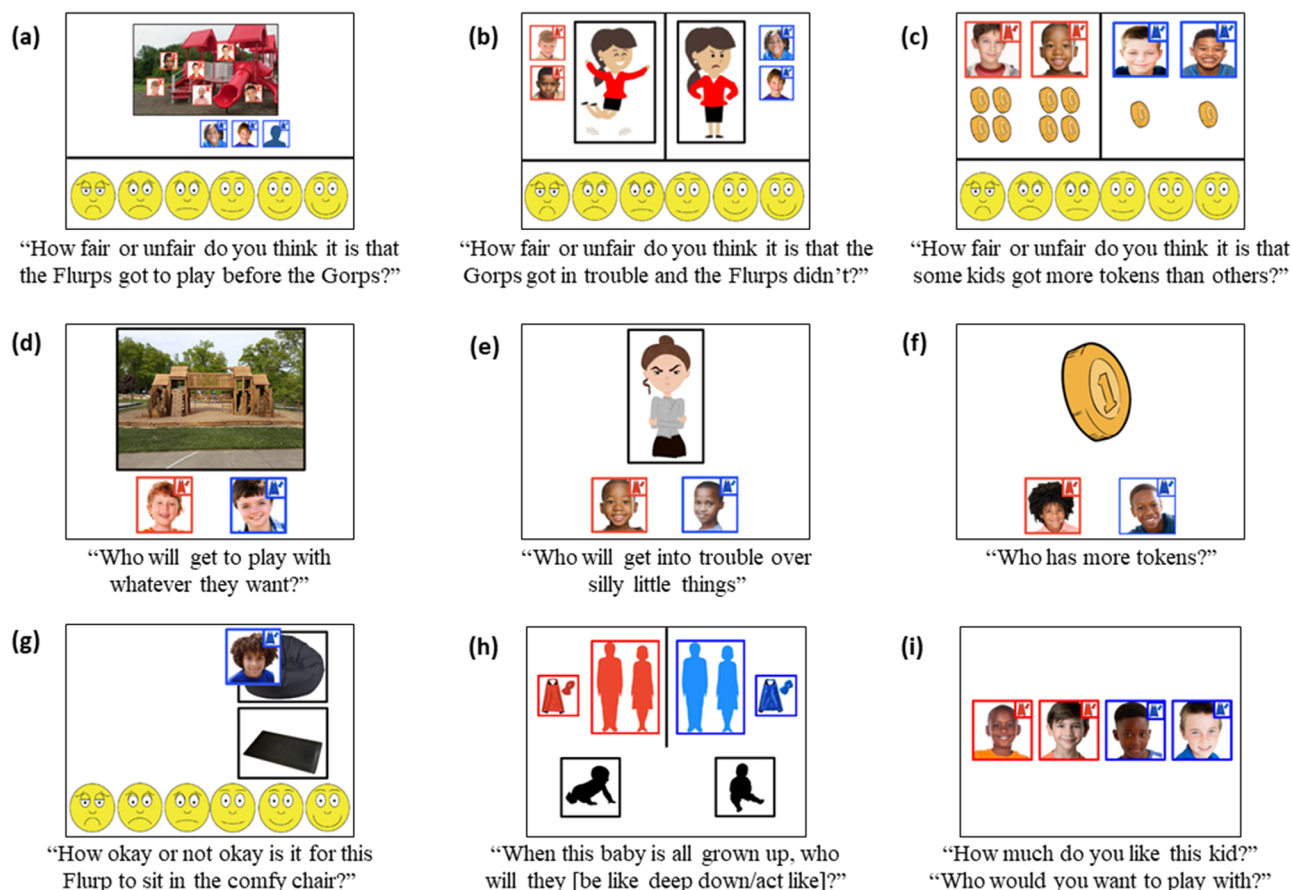


FIGURE 2 Sample images of the assessments. Panels (a–c) are the three vignettes in the *Fairness Beliefs* assessment. Panels (d–f) are the three questions in the *Generalizability Beliefs* assessment. Panel (g) depicts the *Prescriptive Beliefs About the Hierarchy* assessment. Panel (h) depicts the *Essentialist Beliefs* assessment. Panel (i) depicts the visual stimuli for the *Intergroup Attitudes* and *Playmate Preferences* assessments.

have to sit on the floor and play with whatever is left). Participants were then asked a series of four questions: (1) "How okay or not okay would it be for this [advantaged group member] to sit on the floor?", (2) "How okay or not okay would it be for this [disadvantaged group member] to sit in the comfy chair?", (3) "How okay or not okay would it be for this [disadvantaged group member] to pick their toys first?", and (4) "How okay or not okay would it be for this [advantaged group member] to wait until the end to pick their toys?". The order of the questions was counterbalanced. All responses were scored on a 6-point Likert-type scale (1 = "really okay," 6 = "really not okay"); the full scale was explained to participants before they indicated their response. The race (Black, White) of the children depicted in the assessment was counterbalanced across questions.

2.2.6 | Essentialist beliefs

Participants' essentialist beliefs were examined by testing whether they believed that advantaged and disadvantaged group "essences" and behaviors were inheritable using a "Switched-at-Birth" task (Chalik et al., 2017; Mandalaywala et al., 2018; Taylor et al., 2009). Specifically, we told participants a story about two babies—one born to advantaged

group parents, one born to disadvantaged group parents—who were switched at birth and raised by the other set of parents. We then asked them two questions regarding who they thought each baby would grow up to be like "deep down" and who they thought each baby would "act like" when they were grown (Figure 2h). Participants were first asked about the babies' group essences ("When this baby is all grown up, do you think that deep down they'll be a [advantaged group member] or a [disadvantaged group member]?") and were then asked about the babies' behaviors ("When this baby is all grown up, do you think they will 'act like' a [advantaged group member] or a [disadvantaged group member]?"). The questions were asked about both babies; which baby children were asked about first was counterbalanced. For all questions, responses indicating the birth parents were coded as a "1" and responses indicating the adoptive parents were coded as a "0." Silhouettes matching the colors of the novel groups were used for the parents and black silhouettes were used for the babies.

2.2.7 | Intergroup biases

Participants completed two assessments of their intergroup biases: (1) *Intergroup Attitudes* and (2) *Playmate Preferences*.

Intergroup attitudes

Participants were shown photos of two advantaged (1 Black, 1 White) and two disadvantaged group members (1 Black, 1 White) one at a time in a counterbalanced order. For each photo, participants were asked how much they liked that child on a 6-point Likert-type scale (1 = “really don’t like,” 6 = “really like”; Figure 2i); the full scale was explained to participants before they indicated their response.

Playmate preferences

Participants were then shown the pictures of all four children in the *Intergroup Attitudes* assessment and were asked which of those children they wanted to play with the most. Responses were scored as 0 if participants chose an advantaged group member and 1 if they chose a disadvantaged group member.

2.3 | Data analytic approach

All analyses were conducted in R; analysis scripts and full data are available at: <https://osf.io/3rmep/>. Generalized estimating equations (GEE) were used to analyze the *Fairness Beliefs*, *Generalizability Beliefs*, *Prescriptive Beliefs*, *Essentialist Beliefs*, and *Intergroup Attitudes* assessments with participant age (centered) and status included as predictor variables. Children’s responses to the power, discipline, and resource disparity contexts were correlated for the *Fairness Beliefs* (all $r_s > 0.56$, $p_s < 0.01$) and *Generalizability Beliefs* (all $r_s > 0.28$, $p_s < 0.01$) assessments. Given these correlations, rather than running separate GEEs for each context (three for each assessment), we included children’s responses to the three contexts as a repeated factor and added context as a control variable. To assess whether children responded differently to the advantaged and disadvantaged group members in the *Prescriptive Beliefs*, *Essentialist Beliefs*, and *Intergroup Attitudes* assessments, the group status of the child depicted in the assessment was added to the models as a predictor variable. Binomial regressions with age (centered) and condition were used to analyze the *Playmate Preferences* assessment. Follow-up one-sample t-tests and Chi-Squared tests were conducted for each condition to detect differences from chance/neutral responses for each assessment. A similar pattern of results was found when including gender as a covariate for all models (see [Supplemental Materials](#)).

3 | RESULTS

Specific results for each assessment are reported below. Overall, we found that children randomly assigned to the advantaged condition were: (H1) more likely to say the hierarchy was fair (compared to the disadvantaged and third-party conditions), (H2a) more likely to view the hierarchy as generalizable (compared to the disadvantaged and third-party conditions), (H2b) more likely to reject efforts to challenge the hierarchy (compared to the disadvantaged condition), (H3) more likely to view advantaged group essence—but not behaviors, contrary to our hypotheses—as inheritable (with age, compared to the disadvantaged condition), (H4a) more likely to hold negative attitudes

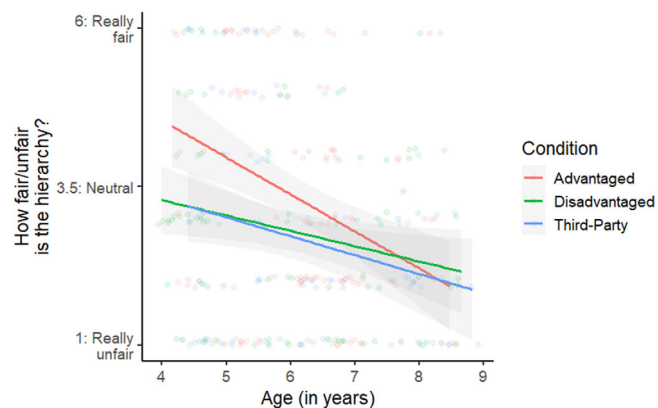


FIGURE 3 Children’s fairness beliefs by age (in years) and condition. Red, green, and blue lines represent the linear regression lines for children in the advantaged, disadvantaged, and third-party conditions, respectively. Shaded regions around the linear regression lines represent the estimated standard errors. Shaded dots represent children’s responses for each trial (red = advantaged, green = disadvantaged, blue = third-party).

towards disadvantaged group members (compared to the disadvantaged and third-party conditions), and (H4b) more likely to choose to play with advantaged over disadvantaged group members (compared to the disadvantaged condition).

3.1 | Fairness beliefs

As shown in Figure 3, children in the advantaged condition judged the hierarchy to be fairer than those in the disadvantaged ($\beta = -0.54$, $SE = 0.22$, $p = 0.015$) and third-party ($\beta = -0.63$, $SE = 0.24$, $p = 0.008$) conditions. Children also judged the hierarchy to be more unfair with age ($\beta = -0.58$, $SE = 0.12$, $p < 0.001$). The interaction between age and condition was not significant ($\beta = 0.34$, $SE = 0.17$, $p = 0.051$). Children in the disadvantaged and third-party conditions did not differ in their judgments ($p = 0.69$).

Testing differences from a neutral evaluation (i.e., 3.5 on the 1–6 Likert scale), children in the disadvantaged ($M = 2.80$, $SD = 1.72$; $p < 0.001$) and third-party ($M = 2.69$, $SD = 1.86$; $p < 0.001$) conditions judged the hierarchies to be unfair, whereas children in the advantaged condition did not differ from a neutral judgment (i.e., did not say it was fair or unfair; $M = 3.28$, $SD = 2.03$; $p = 0.20$).

3.2 | Normative beliefs

3.2.1 | Generalizability beliefs

As shown in Figure 4, children in the advantaged condition were more likely to generalize the hierarchy to new contexts (i.e., expect advantaged and disadvantaged group members to maintain their statuses in new contexts) than were children in the disadvantaged ($\beta = -0.41$, $SE = 0.08$, $p < 0.001$) and third-party ($\beta = -0.23$, $SE = 0.08$, $p = 0.005$) conditions, and children in the third-party condition were more likely

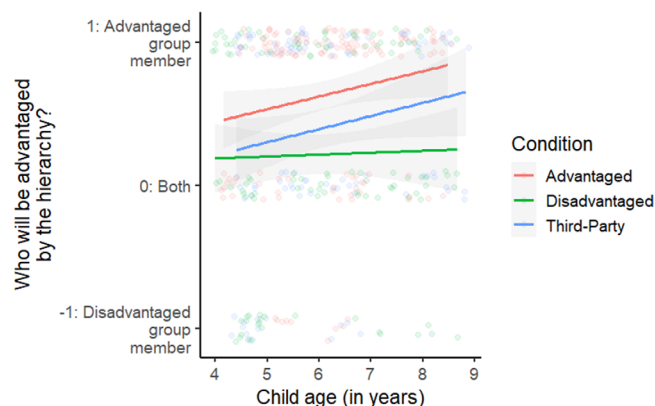


FIGURE 4 Children's generalizability beliefs by age (in years) and condition. Red, green, and blue lines represent the linear regression lines for children in the advantaged, disadvantaged, and third-party conditions, respectively. Shaded regions around the linear regression lines represent the estimated standard errors. Shaded dots represent children's responses for each trial (red = advantaged, green = disadvantaged, blue = third-party).

to generalize the hierarchy than were children in the disadvantaged condition ($\beta = -0.18$, $SE = 0.09$, $p = 0.045$). Children also became more likely to generalize the norms governing the hierarchy with age ($\beta = 0.09$, $SE = 0.04$, $p = 0.012$).

Testing differences from chance, children in all three conditions were more likely to expect that advantaged and disadvantaged group members would maintain their status (advantaged: $M = 0.63$, $\chi^2 = 91.00$, $df = 2$, $p < 0.001$; disadvantaged: $M = 0.22$; $\chi^2 = 10.00$, $df = 2$, $p = 0.008$; third-party: $M = 0.40$; $\chi^2 = 25.00$, $df = 2$, $p < 0.001$).

3.2.2 | Prescriptive beliefs

As shown in Figure 5, children in the advantaged condition judged individuals who challenged the hierarchy more negatively than did children in the disadvantaged condition ($\beta = 0.88$, $SE = 0.31$, $p = 0.005$). Children in the advantaged ($p = 0.12$) and disadvantaged ($p = 0.22$) conditions did not differ from those in the third-party condition. No other significant effects were found.

Testing differences from a neutral evaluation (i.e., 3.5 on the 1–6 Likert scale), children in the advantaged condition judged challenging the hierarchy to be not okay ($M = 3.93$, $SD = 2.16$, $p = 0.006$), whereas children in the disadvantaged ($M = 3.19$, $SD = 1.98$, $p = 0.06$) and third-party ($M = 3.53$, $SD = 1.99$, $p = 0.90$) conditions did not differ from a neutral evaluation.

3.3 | Essentialist beliefs

3.3.1 | Beliefs about essences

As shown in Figure 6, with age, children in the advantaged condition were more likely to believe that advantaged group “essence” was

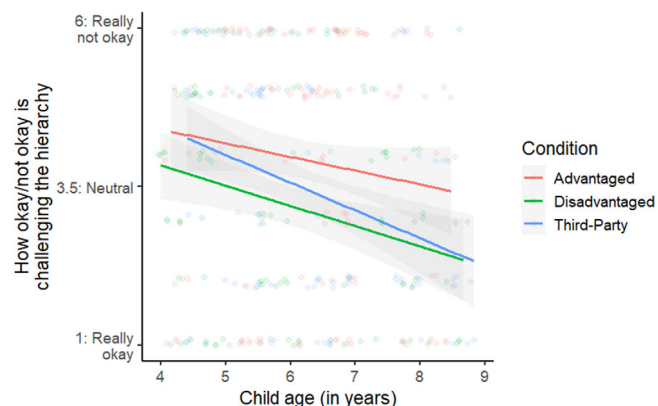


FIGURE 5 Children's prescriptive beliefs by age (in years) and condition. Red, green, and blue lines represent the linear regression lines for children in the advantaged, disadvantaged, and third-party conditions, respectively. Shaded regions around the linear regression lines represent the estimated standard errors. Shaded dots represent children's responses for each trial (red = advantaged, green = disadvantaged, blue = third-party). A significant effect for age was not found; age is included on the x-axis for consistency with the other assessments.

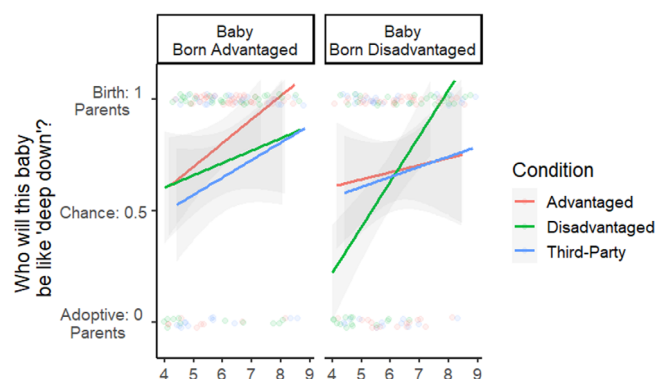


FIGURE 6 Children's essentialist beliefs (essences) about the babies born to advantaged and disadvantaged parents by age (in years) and condition. Red, green, and blue lines represent the linear regression lines for children in the advantaged, disadvantaged, and third-party conditions, respectively. Shaded regions around the linear regression lines represent the estimated standard errors. Shaded dots represent children's responses for each trial (red = advantaged, green = disadvantaged, blue = third-party).

inheritable, whereas children in the disadvantaged condition were more likely to believe that disadvantaged group “essence” was inheritable (age by condition [advantaged, disadvantaged] by birth-status interaction: $\beta = -1.82$, $SE = 0.82$, $p = 0.027$). The age by condition [disadvantaged, third-party] by birth-status interaction trended in the hypothesized direction but was not significant ($p = 0.051$). The advantaged, third-party contrast was not significant ($p = 0.47$). With age, children were also more likely to believe that advantaged group essence (compared to disadvantaged group essence) was inheritable (age by birth-status interaction: $\beta = 1.07$, $SE = 0.47$, $p = 0.022$). No other significant effects were found.

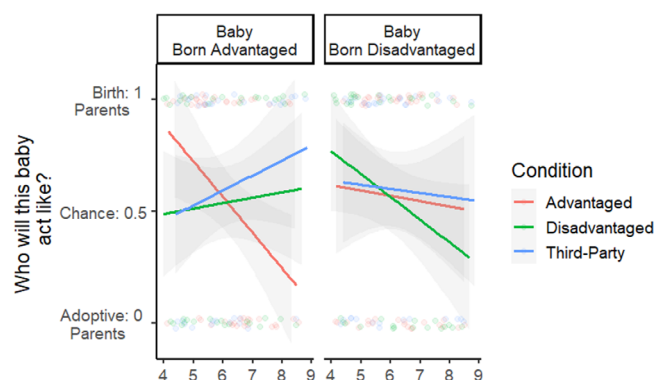


FIGURE 7 Children's essentialist beliefs (behaviors) about the babies born to advantaged and disadvantaged parents by age (in years) and condition. Red, green, and blue lines represent the linear regression lines for children in the advantaged, disadvantaged, and third-party conditions, respectively. Shaded regions around the linear regression lines represent the estimated standard errors. Shaded dots represent children's responses for each trial (red = advantaged, green = disadvantaged, blue = third-party).

Testing differences from chance, children in the advantaged condition were above chance at expecting the babies born to both advantaged ($M = 0.83, \chi^2 = 20.00, df = 1, p < 0.001$) and disadvantaged parents ($M = 0.68, \chi^2 = 6.00, df = 1, p = 0.01$) to be like their birth parents "deep down". Children in the disadvantaged condition were above chance for babies born to advantaged ($M = 0.72, \chi^2 = 7.00, df = 1, p = 0.006$), but not disadvantaged ($M = 0.64, \chi^2 = 3.00, df = 1, p = 0.08$), parents. And children in the third-party condition did not differ from chance in their expectations for babies born to advantaged ($M = 0.66, \chi^2 = 3.00, df = 1, p = 0.06$) or disadvantaged ($M = 0.66, \chi^2 = 3.00, df = 1, p = 0.06$) parents.

3.3.2 | Beliefs about behaviors

Counter to children's beliefs about inherited essences (see above), as shown in Figure 7, with age, children in the advantaged condition became more likely to expect that the baby born to advantaged parents would act like their adoptive disadvantaged parents, whereas children in the disadvantaged condition became more likely to expect that the baby born to disadvantaged parents would act like their adoptive advantaged parents (age by condition [advantaged, disadvantaged] by birth-status interaction: $\beta = -1.14, SE = 0.55, p = 0.036$). Subsumed within this interaction were significant age by condition interactions (advantaged, disadvantaged contrast: $\beta = 0.81, SE = 0.40, p = 0.044$; advantaged, third-party contrast: $\beta = 1.00, SE = 0.42, p = 0.017$) and a main effect for age ($\beta = -0.71, SE = 0.33, p = 0.032$). The age by condition by birth-status interactions were not significant for the advantaged, third-party ($p = 0.084$) or the disadvantaged, third-party ($p = 0.75$) contrasts. No other significant effects were found.

Testing differences from chance, children in all three conditions were at chance in expecting babies to act like their birth or adoptive

parents regardless of condition or the status of the birth parents (all $ps > 0.20$).

3.4 | Intergroup biases

3.4.1 | Intergroup attitudes

As shown in Figure 8, children in the advantaged condition held less positive attitudes towards disadvantaged group members compared to children both in the disadvantaged ($\beta = 1.29, SE = 0.36, p = 0.003$) and third-party ($\beta = 0.90, SE = 0.41, p = 0.028$) conditions, whereas children's attitudes towards advantaged group members did not differ across conditions. Children in the disadvantaged and neutral conditions did not differ in their attitudes ($p = 0.30$). Across conditions, children held more positive attitudes towards advantaged than disadvantaged group members ($\beta = -0.75, SE = 0.27, p = 0.006$).

Testing differences from a neutral attitude (i.e., 3.5 on the 1–6 Likert scale), children in the advantaged condition held positive attitudes towards advantaged ($M = 4.60, SD = 1.53, p < 0.001$), but not disadvantaged group members ($M = 3.85, SD = 1.84, p = 0.2$), whereas children in the disadvantaged and third-party conditions held positive attitudes towards both advantaged and disadvantaged group members (Disadvantaged Condition: Advantaged-Group-Member: $M = 4.13, SD = 1.42, p = 0.009$, Disadvantaged-Group-Member: $M = 4.65, SD = 1.15, p < 0.001$; third-party condition: Advantaged-Group-Member: $M = 4.19, SD = 1.51, p = 0.01$, Disadvantaged Group-Member: $M = 4.33, SD = 1.42, p = 0.002$).

3.4.2 | Playmate preferences

As shown in Figure 9, children in the advantaged condition were less likely than children in the disadvantaged condition to choose to play with the disadvantaged group members (i.e., more likely to choose to play with the advantaged group members; condition [advantaged, disadvantaged] by group status interaction: $\beta = 1.34, SE = 0.55, p = 0.015$). Children in the advantaged ($p = 0.40$) and disadvantaged ($p = 0.13$) conditions did not differ from those in the third-party condition. Across conditions, children were more likely to choose to play with the advantaged than disadvantaged group members ($\beta = -1.05, SE = 0.38, p = 0.006$). No other significant effects were found.

Testing differences from chance for each condition, children in the advantaged condition were below chance at choosing to play with the disadvantaged group members ($M = 0.34, \chi^2 = 5, p = 0.03$), whereas children in the disadvantaged ($M = 0.54, \chi^2 = 0.2, p = 0.6$) and third-party conditions ($M = 0.40, \chi^2 = 1, p = 0.2$) did not differ from chance.

3.5 | Correlations between measures

As shown in Table 1, children who saw the hierarchy as more fair and more generalizable had more positive attitudes towards the

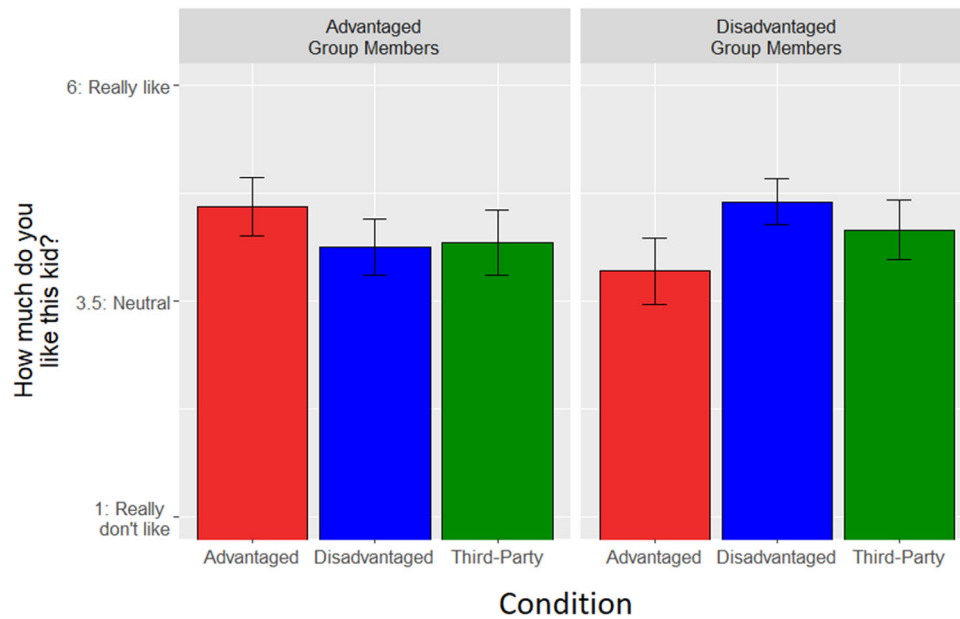


FIGURE 8 Children's attitudes towards advantaged and disadvantaged group members by condition. Red, green, and blue bars represent the mean attitudes for children in the advantaged, disadvantaged, and third-party conditions, respectively. Error bars represent the 95% confidence intervals.

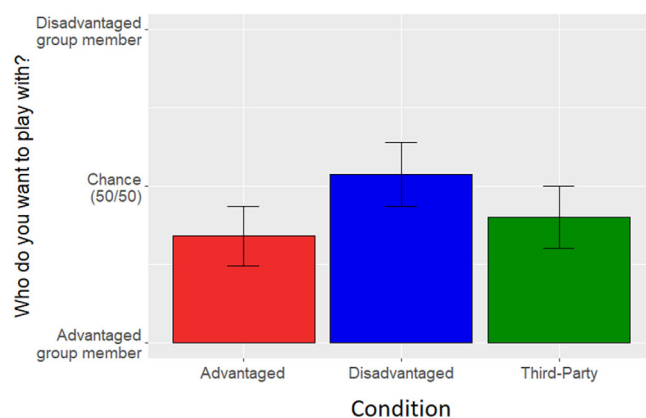


FIGURE 9 Children's choice to play with either the advantaged or disadvantaged group members by condition. Red, green, and blue bars represent the proportion of children choosing the disadvantaged group member in the advantaged, disadvantaged, and third-party conditions, respectively. Error bars represent the 95% confidence intervals.

advantaged group members. Children's attitudes towards advantaged and disadvantaged group members were also correlated with their decision about whom to play with.

4 | DISCUSSION

This study revealed how children's status within a hierarchy shapes the beliefs they form about that hierarchy and the stratified groups that comprise it. Consistent with our hypotheses, advantaged children were

more likely to hold a range of hierarchy-reinforcing beliefs, including that the hierarchy is fair (compared to disadvantaged and third-party conditions), generalizable (compared to disadvantaged and third-party conditions), and wrong to challenge (compared to disadvantaged condition). Advantaged children were also more likely to hold negative attitudes about disadvantaged group members (compared to disadvantaged and third-party conditions) and were more likely to exclude disadvantaged group members (compared to disadvantaged condition). Partially in line with our hypotheses, we also found that, with age, both advantaged- and disadvantaged-group children were more likely to believe that ingroup members' babies would act like their adoptive (outgroup) parents, but would still share their birth (ingroup) parents' "essence."

Importantly, children in the disadvantaged- and third-party conditions judged the hierarchy to be unfair, did not negatively evaluate challenges to the hierarchy, held positive attitudes about advantaged and disadvantaged group members, and did not exclude disadvantaged group members. Yet members of the advantaged group did not judge the hierarchy to be unfair (judging it neutrally), negatively evaluated peers who challenged the hierarchy, held positive attitudes about advantaged, but not disadvantaged, group members, and excluded disadvantaged group members when making decisions about whom to play with. These results provide novel insights into a developmental mechanism that contributes to the formation of hierarchy-reinforcing beliefs in early childhood—advantaged status within that hierarchy—and contribute to our understanding of how children perceive and respond to the social hierarchies they experience in their daily lives. Critically, our results suggest that the tendency for advantaged group members to reinforce social hierarchies may be due, in part, to changes in the fundamental beliefs they develop about the hierarchy and the



TABLE 1 Means, standard deviations, and correlations with confidence intervals for each assessment. The essentialist beliefs and intergroup attitude assessments were further split by questions focusing on high- and low-status group members.

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Fairness	2.96	1.62									
2. Generalizability	0.43	0.51	0.01 [−0.17, 0.19]								
3. Prescriptive	3.42	1.58	−0.03 [−0.21, 0.15]	−0.18 [−0.35, 0.00]							
4. Essence (born-advantaged)	0.74	0.44	−0.02 [−0.20, 0.16]	0.10 [−0.08, 0.28]	0.09 [−0.09, 0.27]						
5. Essence (born- disadvantaged)	0.66	0.48	−0.06 [−0.23, 0.12]	0.17 [−0.01, 0.34]	−0.01 [−0.19, 0.17]	0.43*** [0.27, 0.57]					
6. Behavior (born-advantaged)	0.55	0.50	0.26 [0.08, 0.42]	0.14 [−0.04, 0.31]	−0.01 [−0.19, 0.17]	−0.10 [−0.28, 0.08]	0.24 [0.06, 0.40]				
7. Behavior (born- disadvantaged)	0.57	0.50	0.18 [−0.00, 0.35]	0.04 [−0.14, 0.21]	−0.06 [−0.24, 0.12]	0.18 [0.00, 0.35]	−0.05 [−0.23, 0.13]	0.29 [0.11, 0.44]			
8. Attitude (advantaged)	4.33	1.49	0.35** [0.18, 0.50]	0.29* [0.12, 0.45]	−0.04 [−0.22, 0.14]	−0.03 [−0.21, 0.15]	0.09 [−0.09, 0.26]	0.23 [0.05, 0.39]	0.08 [−0.11, 0.25]		
9. Attitude (disadvantaged)	4.25	1.55	−0.20 [−0.37, −0.02]	−0.11 [−0.28, 0.07]	0.22 [0.04, 0.38]	0.12 [−0.06, 0.29]	0.17 [−0.01, 0.34]	−0.04 [−0.22, 0.14]	−0.08 [−0.25, 0.10]	−0.07 [−0.25, 0.11]	
10. Playmate preferences	0.42	0.50	−0.27 [−0.42, −0.09]	−0.13 [−0.30, 0.05]	0.11 [−0.07, 0.29]	0.05 [−0.14, 0.22]	0.12 [−0.06, 0.29]	−0.14 [−0.31, 0.04]	−0.08 [−0.25, 0.10]	−0.32* [−0.47, −0.15]	0.36** [0.19, 0.50]

Notes: M and SD are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation. Asterisks indicate Holm's adjusted *p* values.

**p* < 0.05;

***p* < 0.01;

****p* < 0.001.

stratified groups who comprise it, and not *only* a simple desire for resources or power. Although, future research is needed to ensure that children did not strategically modify the beliefs they reported during the study in an attempt to gain resources or power.

4.1 | Differences by group status

Across multiple measures, we found consistent evidence that children randomly assigned to an advantaged group were more likely to develop beliefs about fairness, normativity, advantaged groups' essences (with age), and intergroup biases that reinforce the hierarchy. These results extend past research finding that children and adults are more likely to reinforce social hierarchies that advantage them by documenting how advantaged status shapes the foundational beliefs (e.g., whether it is fair, generalizable, prescriptive, or innately determined) that even

young children form to make sense of the social hierarchies they are embedded within.

There are many reasons why advantaged children may be more likely to develop these beliefs, including an increased desire for hierarchical social structures, self-esteem, status motivations, and differences in how the hierarchy enables and constrains advantaged and disadvantaged group members' thoughts and actions (also see Hussak & Cimpian, 2015). Our study was not designed to tease these different explanations apart, and indeed, it is likely that many of these motivations overlap in shaping how children think about the hierarchies they are embedded within. Future research could explore this question by assessing children's verbal reasoning for their choices to examine the justifications children give for their beliefs. Another promising direction for future research would be to test if disrupting one form of hierarchy-reinforcing belief (e.g., explicitly telling children that the hierarchy is unfair or does not generalize to other contexts) might



impact their other beliefs about the hierarchy (e.g., their essentialist beliefs about the hierarchies, intergroup attitudes, and playmate preferences).

The present study examined the directionality of effects by comparing advantaged and disadvantaged children's responses to those assigned to a neutral third-party condition. Finding that advantaged children were more likely to say the hierarchy was fair and generalizable and were also more likely to hold negative attitudes towards disadvantaged group members *compared to a third-party group* provides strong evidence that experiences with advantaged status, specifically, are driving some of our effects. However, counter to our hypotheses, differences were not found between advantaged and third-party children's responses to the prescriptive beliefs, essentialist beliefs, and playmate preferences assessments (though children from the advantaged and disadvantaged conditions differed from one another on these measures), suggesting that some beliefs may be sensitive to experiences with both advantaged and disadvantaged status. It is worth noting, however, that, counter to our hypotheses, the only significant difference between children in the disadvantaged and third-party conditions across the measures was the extent to which they generalized the hierarchy to a new context; children in the third-party condition were more likely to generalize than those in the disadvantaged condition. This pattern suggests that how children thought about the hierarchy in the disadvantaged condition was similar to how they think about them when they are neutral third parties, when their own self-interest is irrelevant to their evaluations. It remains unclear whether this is because children in the third-party condition were more likely to take the perspective of disadvantaged group members or because children in both the disadvantaged and third-party conditions were simply more likely to see the objective harms caused by the hierarchy and thus come to similar conclusions about it. Future research examining these possibilities may be particularly valuable for understanding how perspective taking exercises can be leveraged to disrupt hierarchy-reinforcing beliefs and promote positive intergroup dynamics (Killen et al., 2022).

4.2 | Developmental implications

Children judged the hierarchy to be more unfair and generalizable with age. Apart from essentialist beliefs (see below), however, we did not find any interactions between age and children's status within the hierarchy. This suggests that the effect of status in shaping children's beliefs about hierarchies may rely on more general and early emerging processes that are already established by 4-year-old and remain consistent throughout development. These results are consistent with past research finding that advantaged children begin to hold intergroup biases as young as 4–5 years old (Dunham et al., 2015; Horwitz et al., 2014; Nesdale & Flesser, 2001; Rizzo & Killen, 2018), but deviate from past research finding that older children are more likely than younger children to reject advantageous inequalities (Blake et al., 2015; Rizzo & Killen, 2020). Future research using larger sample sizes could provide important insights into the nature of these effects, and specifically

whether some beliefs (e.g., fairness and essentialist beliefs) are more sensitive to age-related differences in experiences with social status than others (e.g., normative beliefs, intergroup biases).

Interestingly, we found nuanced interactions between age, status, and type of belief for children's essentialist beliefs that went beyond the simple effects we hypothesized. Specifically, with age, both advantaged- and disadvantaged-group children were more likely to believe that ingroup members' babies would act like their adoptive (outgroup) parents, but would still share their birth (ingroup) parents' "essence." This pattern—children expecting group members to inherit internal, but not external/behavioral, processes—is referred to as a "differentiated" understanding of social categories and is common for children in this age-range (Chalik et al., 2017; Taylor et al., 2009). One reason for this may be that, with age, children develop a more robust understanding of the social, cultural, and contextual factors underlying behaviors and become particularly sensitive to the behavioral norms held by ingroups and outgroups (Rakoczy & Schmidt, 2013; Roberts, 2021; Killen & Rutland, 2013). This could also explain the main effect for age for the behaviors question, such that, with age, children became more likely to expect babies to "act like" their adoptive parents because they expect behaviors to be guided primarily by learned social norms (as opposed to innate behaviors/instincts).

Interestingly, we found that children were more likely to hold this differentiated pattern of beliefs when reasoning about babies born from ingroup—rather than outgroup—parents. Although we did not hypothesize this effect, these results may be explained by past research finding that members of disadvantaged groups sometimes use essentialist beliefs about their group as a self-protective mechanism, whereas members of advantaged groups often form essentialist beliefs as a way of reinforcing their group's privileged position within a hierarchy (see Mahalingam, 2003, 2007). Thus, it is possible that different motivations underlie the formation of essentialist beliefs for members of advantaged and disadvantaged groups. Given that novel social groups were used in the present study, however, additional research is needed to determine if the same processes underlie children's beliefs about the social groups they are a part of in their daily lives (e.g., gender, race).

4.3 | Future directions and limitations

There are several additional limitations to the present research that should be explored in future research. First, this study was not designed to detect effects based on participant's gender, race, or SES, nor was it designed to address whether being advantaged by one hierarchy leads children to develop hierarchy-reinforcing beliefs about *other* social hierarchies. In supplemental analyses, we found only one significant, non-hypothesized, effect for participant gender (girls were more likely to hold essentialist beliefs about groups' essences than boys; $p = 0.029$; see [Supplemental Materials](#)) and one significant effect for the race of the characters depicted in the assessments (younger disadvantaged children were less likely to choose to play with the Black group members than younger advantaged children; $p = 0.009$;

see [Supplemental Materials](#)). Given that children are aware of both gender and racial status hierarchies by as young as 4–5 years old (Bian et al., 2017; Mandalaywala et al., 2018; Olson et al., 2012; Shutts et al., 2016; Rizzo et al., 2022), these results suggest that experiences with advantaged status within one hierarchy do not necessarily generalize to other hierarchies. It is important to acknowledge, however, that the present study was not designed to fully test this possibility (i.e., we did not include assessments explicitly testing children's beliefs about racial, gender, or other social hierarchies and stimuli were gender-matched) and thus future research is needed to examine these processes in more detail.

Relatedly, given that social hierarchies are intersectional and exist along and across multiple social identities (e.g., gender, race, nationality, sexuality, social class; Collins & Blige, 2020; Crenshaw, 1989)—and that children are aware of these intersections (Lei & Rhodes, 2021; Lei et al., 2020)—it is important to understand how hierarchy-reinforcing beliefs emerge and develop in respect to intersectional social hierarchies. The lack of significant findings noted in the previous paragraphs may suggest that, although children's experiences with social hierarchies are intersectional, the effects of experiences with advantaged status may only impact children's beliefs about the specific hierarchy that they are advantaged by in that context. That is, being advantaged or disadvantaged by one's gender may not make someone more or less likely to hold hierarchy-reinforcing beliefs about race, or vice versa. Nevertheless, future research should continue to examine the intersectional implications of children's multiple identities and how children respond when different aspects of their identities are simultaneously advantaged and disadvantaged.

Additionally, the present study used three manifestations of social hierarchies to illustrate the hierarchy to children that were based on prior research (Gülgöz & Gelman, 2017; Rizzo & Killen, 2020): Social power, treatment by authorities, and access to resources. Children's judgments and generalizations of each of these manifestations were all correlated, suggesting that children understood each of the three vignettes as a component within the larger hierarchy. Yet, future research should examine how children respond to each manifestation independently, other manifestations of social hierarchies, and the extent to which children need to be aware of multiple facets of a hierarchy to become fully aware of it. The present study also examined children's understanding of group-based social hierarchies because of the consequences of these hierarchies in children's daily lives (Corsaro, 2017; Seaton & Douglass, 2014; Sellers et al., 2006; Umaña-Taylor, 2016); future research is needed to identify if these effects are specific to group-based hierarchies or if they would also generalize to interpersonal hierarchies (but see Peretz-Lange, 2021; Rizzo et al., 2020; Rizzo & Killen, 2020; Vasilyeva et al., 2018 for evidence that children's responses to individual- and group-based disparities differ). Finally, the cross-sectional nature of the present study limits our ability to identify the long-term development of these beliefs; future research using longitudinal designs with additional measures to assess children's reasoning for their beliefs and attitudes would provide valuable insights into how extended experiences with advantaged and disadvantaged status shape children's hierarchy-reinforcing beliefs over time.

5 | CONCLUSION

Overall, the present study demonstrated how advantaged group status can shape children's developing beliefs about that hierarchy and the stratified groups that comprise it. Specifically, we found that children who were advantaged by a hierarchy were more likely to develop several beliefs that reinforce that hierarchy compared to children who were disadvantaged or neutral third-parties to the hierarchy. These results highlight how children's beliefs about, and responses to, social hierarchies are shaped by their position within them and have important implications for theories in both social and developmental psychology regarding how to disrupt the formation of hierarchy-reinforcing beliefs in early childhood.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available on OSF at <https://osf.io/3rmep/>.

ETHICS STATEMENT

The protocol for this study was approved by the IRB at New York University, protocol number: IRB-FY2016-760, title: Conceptual development and social cognition.

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SUPPORTING INFORMATION

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