# **Developmental Psychology**

# Beyond Our Tribe: Developing a Normative Sense of Group-Transcendent Fairness

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Human beings naturally prefer and support ingroup members more than outgroup members, but to what extent do we *morally value* equal treatment to ingroups and outgroups? Across four preregistered studies. we examined the development of "group-transcendent fairness," that is, the moral endorsement of allocating resources equally to ingroup members and outgroup members. We found that when allocating common resources to ingroup and outgroup members, American adults (N = 549) thought it was morally right to allocate equally instead of giving more to their family, political, or minimal ingroup members, across high and low stakes (Study 1). This normative sense of group-transcendent fairness develops gradually: 4- to 6-yearolds tended to endorse ingroup favoritism, whereas by age 8 or 9 children endorsed intergroup fairness (Studies 2–3, N = 214). Adults from China (N = 200)—a culture that values ingroup loyalty—also endorsed intergroup fairness as morally right, suggesting this moral value is not specific to western societies where egalitarianism is emphasized (Study 4). In contrast to the normative endorsement of intergroup fairness, participants in all studies did not predict most people to be fair across contexts, suggesting group-transcendent fairness was perceived more as a prescriptive than a descriptive norm (Studies 1-4). Together, our studies reveal the robust presence of group-transcendent fairness, which is valued across group contexts and cultures, develops later than ingroup support, and is prescriptive but not descriptive by nature. The findings help illuminate the nature and development of one group-transcendent moral value that helps promote intergroup relations and societal progress.

#### Public Significance Statement

We naturally love and support people in our own groups, but how much do we also morally value treating ingroup and outgroup members equally? We found that when allocating common resources to ingroup and outgroup members, 4- to 6-year-old children endorse giving more to their family and arbitrary ingroup members, whereas children older than age 8 and adults from the United States and China endorse equal allocations as morally right. In contrast to their moral endorsement to "group-transcendent fairness," children and adults did not predict most other people to be fair. The findings suggest that children gradually develop to morally value group-transcendent fairness, which may have implications for promoting intergroup relations and societal progress.

*Keywords:* fairness, group transcendence, ingroup support, moral development, normal perception, intergroup relations

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Fan Yang and Xin Yang contributed equally to the article and share first authorship.

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All studies reported in this article were preregistered (Study 1: http:// aspredicted.org/blind.php?x=pv7xi4; Study S1: https://aspredicted.org/ BD3\_VX6; Study 2: http://aspredicted.org/blind.php?x=j4xp6z; Study 3: https://aspredicted.org/blind.php?x=kh5ie9; and Study 4: https://aspredicted .org/blind.php?x=4iw66d). All materials, data, and analysis code are shared and can be found at https://osf.io/ena8y/?view\_only=d314606fdcc b4640ae1ed149cd4490e0).

All authors contributed to conceptualization, design, and writing. Xin Yang served as the lead for data analysis. Fan Yang and Yarrow Dunham served in supporting roles for data analysis. Fan Yang drafted the introduction and discussions. Xin Yang drafted the methodology and results sections. All authors edited the drafts of the paper.

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Throughout history, cooperating with ingroup members has been essential for humans to survive and thrive. It is well known that humans have evolved psychological tendencies to facilitate ingroup cooperation. From childhood to adulthood, we naturally care more about ingroup members than outgroup members, in terms of attitudes (e.g., Cheng et al., 2010; Dunham, 2018; Montalan et al., 2012; Mullen et al., 1992; Xu et al., 2009) and behaviors like sharing, helping, and resource allocations (e.g., Balliet et al., 2014; Benozio & Diesendruck, 2015; Bian et al., 2018; Chae et al., 2022; Dunham, 2018; Fehr et al., 2008, 2013; Goette et al., 2006; Jin & Baillargeon, 2017; Locksley et al., 1980; Moore, 2009; Olson & Spelke, 2008; Tajfel et al., 1971; Tajfel & Turner, 2004). What remains unclear is how we morally evaluate these natural behaviors that prioritize ingroup members over outgroup members. In other words, do children and adults think it is morally right to favor ingroup members? If we indeed develop prescriptive values of equal intergroup treatment, then how deeply rooted it is, and do we also view it as a prevalent descriptive norm? To shed light on these questions, the current paper systematically examines the nature and development of a normative sense of grouptranscendent fairness in resource allocations, that is, the moral endorsement of allocating resources to ingroup and outgroup members equally, as opposed to prioritizing people from our own groups.

Our sense of fairness has been theorized to interact with group contexts in influencing judgment and behavior. For example, as one of five moral foundations (moral foundations theory; Haidt, 2012), fairness has been hypothesized to be a "centrifugal" force that urges egalitarian concerns across group boundaries and resists the "centripetal" forces that urge ingroup concerns (Graham et al., 2017). Concerns about group interests and norms have been theorized to influence children's fairness responses in resource allocation (e.g., see Rutland & Killen, 2017, for a review), which is consistent with the view that social identities significantly tune moral cognition (Van Bavel et al., 2022). While these frameworks acknowledge that individuals care about both fairness and ingroup support, it remains unclear if these competing concerns always have similar strengths, or whether fairness would override ingroup support in some circumstances (or vice versa). This question is easier to answer if we do not conceptualize fairness as one abstract moral value that interacts with group concerns, but as inherently multifaceted and contextualized (particularly with regard to the parties involved). Based on the perspective that context is important in moral judgment (Schein, 2020), we conceptualize and study "group-transcendent fairness" as an inherently contextualized, distinct moral value on its own, which allows us to systematically examine its presence, nature, and development across different contexts (e.g., group contexts, stake of resources, culture).

Fairness concerns involving ingroup and outgroup members could be conceptually and developmentally different from fairness in situations where the relevant parties do not belong to different groups, such as situations involving tradeoffs between disinterested third parties, or between the self and another person. Existing research suggests that fairness responses appear later in development if self-interests are at stake. When resources are allocated between third parties, for example, even infants expect equal allocations (e.g., Geraci & Surian, 2011; Sloane et al., 2012; Sommerville et al., 2013). By age 6 children are even willing to incur a cost to distribute resources equally between third parties (Shaw & Olson, 2012). In contrast, when resources are allocated between the self and another person, children under age 7 object when they receive fewer resources than others (i.e., "disadvantageous inequality aversion"), but only older children reject allocations that favor themselves (i.e., "advantageous inequity aversion"; e.g., Blake et al., 2015; Blake & McAuliffe, 2011; Fehr et al., 2008; Sheskin et al., 2014; Smith et al., 2013).

Theoretically, unlike fairness between disinterested third parties or between the self and others, fairness between ingroup and outgroup members involves inherent tension with ingroup-oriented moral values (e.g., ingroup loyalty and obligations), making it less likely to be endorsed by individuals. On many theoretical accounts, our sense of fairness (and even most moral values) evolved to facilitate cooperation within groups rather than between groups (e.g., Brosnan & de Waal, 2014; Curry et al., 2019; Haidt, 2012; Tomasello & Vaish, 2013). Consistent with the view that supporting ingroups is a fundamental moral motive (Rai & Fiske, 2011), values like ingroup loyalty are viewed as morally good across cultures (Curry et al., 2019). Indeed, even philosophers who have argued for the most expansive moral circle support ingroups when provisioning concrete aid (MacFarquhar, 2015; Nussbaum, 2019), and even children view group boundaries as markers of moral boundaries within which obligations hold (e.g., Rhodes, 2012; Rhodes & Chalik, 2013). Therefore, because of its competing ingroup-oriented moral values, it is conceivably difficult to fully endorse grouptranscendent fairness.

Empirically, much existing research shows that children and adults appreciate the morality of partiality over impartial benevolence. For example, adults think it is morally right to help a single family member over a greater number of strangers (Kahane et al., 2018) and disapprove of helping distant others at the expense of close others (Law et al., 2019; McManus et al., 2020). Children and adults expect friends to show partiality instead of neutrality (Liberman & Shaw, 2017; Shaw et al., 2017). It should be noted that these research designs pitted favoring ingroups against favoring outgroups, precluding the possibility of equal intergroup help or allocation. Our paper examines if children and adults would still morally value intergroup fairness over ingroup support when both are available options.

There is some evidence that older children engage in equal intergroup resource allocations in racial group contexts. For example, older children are much more likely than children under age 7 to rectify existing inequalities between disadvantaged outgroups (i.e., African American) and advantaged ingroups (i.e., European American; Elenbaas et al., 2016). Given the extensive social discourse about the racial history regarding African Americans, it is unclear if older children's responses reflect a generalized sense of intergroup fairness per se, or explicit socialization regarding particular racial groups. Indeed, some studies found that children rectify inequalities only when African American targets were disadvantaged, not when European Americans (Elenbaas & Killen, 2016), Asians, or novel groups (Olson et al., 2011) were disadvantaged.

Most directly relevant to our inquiry, it was found that between ages 4 and 10, children as bystanders increasingly view equal allocations between minimal ingroup and outgroup members as "nicer," although they also increasingly expected the allocators to favor their ingroup members (Dejesus et al., 2014). It is unclear if children would hold these expectations when they are the moral agent—thus the interests of ingroup members are relevant to themselves. It is even less clear if children would still endorse intergroup fairness if the ingroup is more meaningful. For example, family group has a special status in evolution and is central in all known human societies (Darwin, 1909; Ko et al., 2020). Evidence shows that young children allocate more common resources to their families than strangers (e.g., Olson & Spelke, 2008). To provide a more complete picture of the presence and scope of grouptranscendent fairness, it is thus important to study contexts involving both minimal and meaningful social groups.

Based on the research reviewed, we hypothesize that it would be mostly likely to observe adults and older children (age 8 and above), but not younger children, to endorse group-transcendent fairness over ingroup support. This is consistent with the findings that children by age 8 start to think fairness transgressions as more serious than conventional violations (Yucel et al., 2022) and they prefer equal allocations over allocations that favor themselves (e.g., Blake et al., 2015; Blake & McAuliffe, 2011; Fehr et al., 2008; Sheskin et al., 2014). At the same time, group-transcendent fairness might also be culturally dependent, such that only people in western societies with strong emphasis on egalitarian values (Haidt & Kesebir, 2010; Henrich, 2020) would endorse it over ingroup support. To examine this possibility, we also studied whether group-transcendent fairness manifests similarly among adults in China, a culture that strongly values ingroup loyalty and obligations (e.g., Fuligni & Zhang, 2004; Qi, 2016; Xu et al., 2007).

Importantly, even if children and adults morally endorse grouptranscendent fairness (*prescriptive judgment*), they may not necessarily expect most people to be fair (*descriptive judgment*) or want to allocate equally (*decisions*). Both prescriptive and descriptive norms play a role in people's behavioral tendencies and decisions (e.g., Bailey et al., 2004; Stok et al., 2014). Prescriptive reasoning has often been observed to be more other-regarding than descriptive expectations or behaviors, particularly when self-interests are at stake (e.g., DeJesus et al., 2014; Smith et al., 2013; Soter et al., 2021). Therefore, we included descriptive judgment and decisions as comparisons to prescriptive judgment.

Across four preregistered studies, adopting developmental (Studies 2-3) and cross-cultural approaches (Studies 1 and 4), our paper systematically examines the nature and development of grouptranscendent fairness in resource allocations. Adults and 4- to 11-year-old children were asked to allocate limited but divisible common resources between an ingroup member and an outgroup member, across different group contexts (family and minimal ingroups) and stakes (e.g., resources highly needed or not). Past literature suggests that 6- to 8-year-olds (e.g., Rizzo et al., 2016) and even preschoolers (Essler et al., 2020) consider the need and welfare of the recipients more when allocating high-stakes necessary resources than low-stakes luxury resources. We were interested in whether need-based considerations might lead children and adults to favor ingroup members more when allocating high-stakes resources. Participants made trade-off choices between ingroup support and intergroup fairness. We also compared their prescriptive reasoning to descriptive expectations (Studies 1-4), behavioral intentions (Studies 1, 2, and 4), and actual behaviors (Study 3). All materials, data, and analysis code for this paper are reported in the manuscript or can be found at https://osf.io/ena8y/?view\_only= d314606fdccb4640ae1ed149cd4490e0.

#### Study 1

To get a sense of the developmental end point, we first explored group-transcendent fairness among U.S. adults. People were asked to allocate common divisible resources between ingroup members and outgroup members, across different group contexts (i.e., family, political, and minimal ingroup members) and stake contexts (i.e., low vs. high). We were most interested in the family and minimal contexts, which correspondingly represents the most meaningful and meaningless groups. Intuitively, the political group may be more meaningful than the minimal group but not as meaningful as the family group, which was included to help us better see the effect of group context.

#### Method

#### **Participants**

We preregistered and recruited 600 adult participants on TurkPrime, who were randomly assigned to one of three group conditions, *family*, *political*, and *minimal*. We excluded participants who did not complete all of the questions (N = 55). The final sample included 549 participants (290 male, 259 female,  $Mdn_{age} = 34$  years, age range = 21–72 years), with N = 195 in the family condition, N = 159 in the political condition (36 participants who indicated "no affiliation" were not included), and N = 195 in the minimal condition. Participants were all located in the United States and had a higher than 95% approval rate with above 1,000 completed tasks on the platform. We did not collect race information, but according to TurkPrime, the majority of our Study 1 participants was White/Caucasian. All studies reported in this paper were approved by the Institutional Review Board of Yale University, Protocol Number 1305012100.

#### Materials and Design

We used Qualtrics to design the study and randomly assign participants to one of the three conditions. In the family condition, the scenarios involved resource allocations between family members and strangers. In the political condition, participants first indicated their political affiliation (i.e., "republican," "democrat," "other party," and "no affiliation") and then responded to resource allocations between political ingroup members and political outgroup members. In the minimal condition, participants were randomly assigned to one of two artificial groups based on a standard dot estimation task (e.g., Tajfel et al., 1971), and then they responded to situations involving allocating resources to minimal ingroup and outgroup members.

In each condition, participants responded to two within-subject resource allocation scenarios in a randomized order. In the *high-stakes* scenario, participants were asked questions about allocating water to two thirsty people who had been hiking for hours in a desert without drinking. In the *low-stakes* scenario, participants were asked questions about allocating water to two people at a party who were not thirsty. In both scenarios, one person was an ingroup member (i.e., family, political ingroup, or minimal ingroup members) and the other person was an outgroup member (i.e., stranger, political outgroup, or minimal outgroup members). There was only enough water to fill one bottle/cup. The containers were opaque, so no one would know what they did or who the allocator was. Participants answered two check questions (i.e., "how much do the individuals

need the drink" and "will anybody know you are the person who distributed the drink"). Participants were provided with feedback if they answered incorrectly. The majority of participants (89%–97%) answered correctly at their first pass for these questions.

#### Measures

After each scenario, participants responded to three test questions in the following order: (a) "What do you choose to do?" (decision), (b) "What do you think is the morally right thing to do?" (prescriptive judgment), and (c) "What do you think most people who are doing this survey will do?" (descriptive judgment). For each question, participants chose between the "intergroup fairness" option, that is, giving half and half to both recipients, and the "ingroup support" option, that is, giving more to the ingroup member than to the outgroup member. If participants chose the "ingroup support" option, they were further asked to estimate the percentage given to the ingroup member, from 51% to 100%. Participants also completed supplemental measures about group attitudes and egalitarianism beliefs (see the online supplemental material). Demographic information was collected at the end of the survey.

# Results

In this and subsequent studies, we did not have hypothesis about the effects of testing order, participant gender, or political orientations in participants' responses, and unless otherwise noted, we did not find these variables significantly predict their responses in preliminary analysis.<sup>1</sup> Our design allows two types of analyses, namely the dichotomous choice ( $0 = ingroup \ support$ , 1 = inter $group \ fairness$ ) and the continuous scale. We report the dichotomous results below for better comparison with the developmental studies. The continuous data yielded similar patterns of results (see the online supplemental material). As preregistered, for each measure, we fit a multilevel logistic model using the R *lmerTest* package (Kuznetsova et al., 2017) predicting response as a function of condition (family, political, and minimal), stakes (high- and lowstakes), and their interaction, with a random intercept for participants.

#### Decisions

Overall, 83% of all participants endorsed the intergroup fairness option across trials and conditions (B = 6.49, SE = .55, 95% CI [5.41, 7.57]). There was a main effect of condition: intergroup fairness was lower in the family condition (M = .79, SD = .40) compared to the minimal condition (M = .87, SD = .33), B = -1.81,SE = .80, [-3.38, -0.25]. There was a significant interaction between condition and stakes (likelihood ratio test comparing the full model to a model without the interaction),  $\chi^2(2, N = 549) =$ 30.78, p < .001: In the family condition, participants were more fair when stakes were low than high  $(M_{high} = .75, SD_{high} = .43;$  $M_{\text{low}} = .84, SD_{\text{low}} = .37), B = 1.50, SE = .47, [0.57, 2.43], \text{but in}$ the minimal condition, participants were less fair when stakes were low than high  $(M_{high} = .91, SD_{high} = .29; M_{low} = .84,$  $SD_{low} = .37$ ), B = -3.91, SE = 1.22, [-6.30, -1.53]. The stakes effect was not significant in the political condition  $(M_{high} = .83,$  $SD_{high} = .38; M_{low} = .84, SD_{low} = .37), B = .32, SE = .57,$ [-0.79, 1.44] (Figure 1).

#### **Prescriptive Judgment**

Similar to their decisions, 92% of all participants endorsed the intergroup fairness option as morally right across trials and conditions (B = 8.73, SE = .63, 95% CI [7.50, 9.97]). People's prescriptive endorsement did not differ across conditions (ps > .48). There was again a significant interaction between condition and stakes,  $\chi^2(2, N = 549) = 9.46$ , p = .009: Participants in the family condition were more likely to endorse intergroup fairness as morally right when stakes were low than high ( $M_{high} = .88$ ,  $SD_{high} = .32$ ;  $M_{low} = .92$ ,  $SD_{low} = .28$ ), B = 1.70, SE = .77, [0.19, 3.20], but in the political condition, participants were slightly *less* fair when stakes were low than high ( $M_{high} = .96$ ,  $SD_{high} = .21$ ;  $M_{low} = .93$ ,  $SD_{low} = .25$ ), B = -2.12, SE = 1.18, [-4.42, 0.19]. The stakes effect in the minimal condition ( $M_{high} = .92$ ,  $SD_{high} = .27$ ;  $M_{low} = .92$ ,  $SD_{low} = .28$ ; B = -.30, SE = .77, [-1.81, 1.22]) was not significant (Figure 1).

# **Descriptive Judgment**

Overall, 69% of all participants chose intergroup fairness across trials and conditions (B = 1.14, SE = .13, 95% CI [0.89, 1.39]).The overall level of intergroup fairness was lower in the family condition (M = .52, SD = .50) compared to both the minimal (M = .81,SD = .39, B = -2.03, SE = .30, [-2.61, -1.45] and the political conditions (M = .73, SD = .44), B = -1.39, SE = .28, [-1.94, ]-0.84] (intergroup fairness was also lower in the political condition compared to the minimal condition, B = -.64, SE = .28, [-1.20,-0.09]). We again found a significant interaction between condition and stakes,  $\chi^2(2, N = 549) = 28.62$ , p < .001: Participants in the family condition thought other people would be more fair toward their family members and strangers when stakes were low than high  $(M_{high} = .43, SD_{high} = .50; M_{low} = .62, SD_{low} = .49; B =$ 1.15, SE = .26, [0.63, 1.67]), whereas participants in the other two conditions thought people would be less fair (in the political condition,  $M_{\text{high}} = .78$ ,  $SD_{\text{high}} = .42$ ;  $M_{\text{low}} = .69$ ,  $SD_{\text{low}} = .47$ ; B = -.68, SE = .31, [-1.28, -0.08]; in the minimal condition,  $M_{\text{high}} = .85,$  $SD_{high} = .36; \quad M_{low} = .78, \quad SD_{low} = .42; \quad B = -.58, \quad SE = .30,$ [-1.18, 0.01]) (Figure 1).

# **Differences Between Measures**

To explore differences between measures, we fit a multilevel logistic model predicting response as a function of measure type (decisions, prescriptive judgment, and descriptive judgment), with a random intercept for participants. People's descriptive judgment was less fair than their own decisions (B = -1.22, SE = .13, 95% CI [-1.47, -0.96]) and prescriptive judgment (B = -2.31, SE = .16, [-2.63, -2.00]). Their decisions were also less fair than prescriptive judgment (B = -1.09, SE = .16, [-1.41, -0.78]). There was also a significant condition by measure interaction,  $\chi^2(4, N = 549) = 29.72$ , p < .001, mainly driven by the more pronounced divergence between participants' decisions and descriptive

<sup>&</sup>lt;sup>1</sup> There was an unpredicted effect of age in Study 1, B = .03, SE = .01, 95% CI [0.02, 0.05], and in Study S1, B = .02, SE = .01, 95% CI [0.00, 0.04]: Older people were more fair than younger people (see plots in the online supplemental material).







*Note.* Error bars represent 95% bootstrapped confidence intervals. See the online article for the color version of this figure.

expectations in the family condition than in the other two conditions. See the online supplemental material on measure correlations.

#### Discussion

In summary, when allocating common resources to ingroup and outgroup members, the majority of U.S. adults endorsed grouptranscendent fairness over ingroup support as morally right. Participants' prescriptive judgment was most fair, followed by their decisions, and their descriptive expectations were the least fair. As stakes increased, they became relatively more biased toward their family member (vs. a stranger) but less biased (or no change) toward their political or minimal ingroup member (vs. an outgroup member). The group and stake effects were relatively small, such that group-transcendent fairness was clearly more endorsed than ingroup support across group and stake contexts. In a separate study, we also asked participants to freely allocate resources on a continuous scale to ingroup and outgroup members, and people also strongly endorsed intergroup fairness (see Study S1 in the online supplemental material). These results establish that U.S. adults do have a clear prescriptive but not descriptive sense of grouptranscendent fairness, across different group and stake contexts. To understand the origins of group-transcendent fairness, the following studies examined its development and cross-cultural variations.

#### Study 2

Study 2 examines the emergence and development of grouptranscendent fairness among 4- to 6-year-old and 9- to 11-year-old children. We chose these ages because previous research suggests that children from these two age groups differ in terms of their general sense of fairness (Blake & McAuliffe, 2011; Shaw et al., 2016) and expectations of intergroup resource distributions (e.g., DeJesus et al., 2014). Our results from Study 1 showed that overall adults endorsed intergroup fairness options most often for the minimal condition and least often for the family condition. We focused on the family condition first (Study 2a), which would provide the most stringent test for the presence of group-transcendent fairness. We contrasted it with the minimal condition (Study 2b), which provides a less stringent test of group-transcendent fairness and see if group-transcendent fairness might emerge early in this context.

### Study 2a

#### Method

**Participants.** We predetermined our sample size based on our laboratory default of at least 30 children per condition for new work. Participants were thirty 4- to 6-year-olds (M = 5.26 years, SD = .62, range 4.19–6.77, 15 female, 15 male) and thirty 9- to 11-year-olds (M = 10.63 years, SD = .78, range 9.20–11.85, 22 female, 8 male). Our sample size would give us >80% power to detect an age difference of effect size d = .66 (similar to the effect size reported in DeJesus et al., 2014). Participants were 50% White, 5% Black, 5% Hispanic/Latino, 5% Mixed, 3% Asian, and 32% unspecified (parents did not provide race information). One additional child was tested but excluded due to language incompetency. For all developmental studies in this paper, participants were tested in the laboratory, at local museums, or at local schools. Parental consent and verbal assent from the child were obtained before testing.

**Procedure.** We made minor changes to the procedure of family condition in Study 1 to make it more child-friendly. First, we added a warm-up question (e.g., "If someone is related to you, such as your brother or sister, is that person in your family or not?"). Even our youngest participants passed this question. Second, we used containers of different colors (i.e., green and orange) to indicate that they belonged to different recipients, with arrows pointing at the cups to indicate the amount of water inside. Third, we used more child-friendly language to ask the test questions: "What do you want to do" (decisions), "What do you think is the right thing to do" (prescriptive judgment), and "I also play this game with many other kids do?" (descriptive judgment). For each question, if participants

chose "giving more to the family member," we asked a follow-up scale question ("A little or a lot more?"), yielding a 3-point scale. At the end, we asked two questions about group attitudes (i.e., "Who do you feel closer to, your family member, or a stranger?" and "Who do you like more, your family member, or a stranger?"). The majority of participants (95% and 100%) chose their family member over the stranger on these questions (B = 3.66, SE = .58, 95% CI [2.52, 4.81]).

#### Results

As preregistered, for each measure, we fit a multilevel logistic model predicting responses (1 = intergroup fairness, 0 = ingroup support) as a function of stakes (high or low), age group (younger or older), and their interaction, with a random intercept for participants. Our analysis with the continuous data (3-point scale) yielded largely similar patterns of results (see the online supplemental material).

**Decisions.** We found a significant effect of age group, B = 2.72, SE = .46, 95% CI [1.82, 3.62]: older children (M = .83, SD = .38) chose intergroup fairness more than younger children did (M = .25, SD = .44). Younger children favored the ingroup support option, B = -1.10, SE = .30, [-1.69, -0.52], while older children favored the intergroup fairness option, B = 1.62, SE = .35, [0.94, 2.30] (Figure 2). The main effect of stakes,  $\chi^2(1, N = 60) = .46$ , p = .50, and the stakes by age group interaction,  $\chi^2(1, N = 60) = 2.28$ , p = .13, were not significant.

**Prescriptive Judgment.** Similar to their decisions, there was a significant effect of age group, B = 6.85, SE = 2.69, 95% CI [1.57,

12.13]: older children (M = .92, SD = .28) were more likely than younger children (M = .30, SD = .46) to endorse intergroup fairness as morally right. Younger children did not think intergroup fairness was right, B = -1.99, SE = 1.19, [-4.33, 0.34], while older children overwhelmingly deemed it as morally right, B = 4.86, SE = 1.73, [1.47, 8.24] (intercept comparing to chance; Figure 2). We did not find effects of stakes,  $\chi^2(1, N = 60) = .98$ , p = .32, or interaction between stakes and age group,  $\chi^2(1, N = 60) = 1.92$ , p = .17.

**Descriptive Judgment.** There was also a significant effect of age group, B = -1.34, SE = .54, 95% CI [-2.40, -0.27]: older children (M = .50, SD = .50) were more likely than younger children (M = .25, SD = .44) to predict that other children would choose the intergroup fairness option (Figure 2). Younger children thought other kids would choose ingroup support, B = -1.34, SE = .43, [-2.17, -0.50], while older children did not hold strong predictions, B = .00, SE = .34, [-0.66, 0.66]. We did not find an effect of stakes,  $\chi^2(1, N = 60) = 2.21$ , p = .14, or an interaction between stakes and age group,  $\chi^2(1, N = 60) = .002$ , p = .96.

**Differences and Relations Between Measures.** We fit a multilevel logistic model predicting response as a function of measure, age group, and their interaction, with a random intercept for participants. We found a significant measure by age group interaction,  $\chi^2(2, N = 60) = 17.43$ , p < .001, showing that younger children responded similarly (biased) across measures, whereas older children selected intergroup fairness the least when predicting other children's behaviors. Older children's descriptive judgment was less fair compared to prescriptive judgment (B = -3.30, SE = .68, 95% CI [-4.63, -1.96]) and their own decisions (B = -2.29,

#### Figure 2

Participants' Responses (1 = Fair, 0 = Bias) as a Function of Stakes and Age Group (4–6 Years and 9–11 Years), Faceted by Measure, in Study 2a (Family) and Study 2b (Minimal)



Note. Error bars represent 95% bootstrapped confidence intervals. y = years. See the online article for the color version of this figure.

SE = .55, [-3.38, -1.20]), and the latter two did not differ (B = -1.01, SE = .66, [-2.31, 0.29]). We also computed the number of trials that each participant was fair on each measure (range 0–2) and found significant correlations among the three measures with or without controlling for age (prescriptive judgment and descriptive judgment, r = .48, p < .001, age controlled r = .36, p = .005; decision and prescriptive judgment, r = .71, p < .001, age controlled r = .38, p = .003; decision and descriptive judgment, r = .58, p < .001, age controlled r = .51, p < .001).

#### Study 2b

To explore whether children would be more likely to endorse intergroup fairness when the ingroup is not as close, Study 2b examined children's intergroup resource allocation responses in the minimal group context.

#### Method

**Participants.** Similar to Study 2a, participants in this study were thirty-one 4- to 6-year-olds (M = 5.35, SD = .76, range 4.10–6.98, 24 female, 6 male, 1 did not report) and thirty-three 9- to 11-year-olds (M = 10.46, SD = .90, range 9.09–11.96, 22 female, 11 male). There were 39% White, 11% Mixed, 3% Black, 3% Hispanic/Latino, and 44% unspecified (parents did not provide race information). Two additional children were tested but excluded due to failure to understand the task.

**Procedure.** We followed the same procedure as Study 2a, except that we asked questions about minimal groups instead of families. At the beginning, children were told that they would be assigned to either the green group or the orange group, depending on the color of a coin that would appear on the screen. Previous studies found no effect of group color (Yang et al., 2022; Yang & Dunham, 2019), and all children were actually assigned to the green group. Participants were asked two preference questions at the end ("Who do you like more" and "Who do you feel closer to"). Most participants (84% and 84%) chose their minimal ingroup member over the outgroup member on these questions (B = 5.95, SE = 1.81, 95% CI [2.40, 9.50]), showing that the manipulation was successful.

#### Results

We analyzed the data using similar models as specified in Study 2a. The results are presented in Figure 2.

**Decisions.** Overall, older children decided to choose intergroup fairness over ingroup support (M = .86, SD = .35, B = 3.03, SE = .89, 95% CI [1.28, 4.78]), whereas younger children did not show a clear pattern (M = .48, SD = .50, B = -.10, SE = .42, [-0.93, 0.73]). There was a marginally significant interaction between stakes and age group,  $\chi^2(1, N = 64) = 3.75$ , p = .053, driven by older children being sensitive to stakes (while younger children did not show any stakes effect, B = -.39, SE = .64, [-1.64, 0.85]). Older children were more fair when stakes were low than high, B = 2.68, SE = 1.19, [0.35, 5.00] ( $M_{high} = .76$ ,  $SD_{high} = .44$ ;  $M_{low} = .97$ ,  $SD_{lowr} = .17$ ).

**Prescriptive Judgment.** There was a significant effect of age group, B = 4.00, SE = 1.19, 95% CI [1.66, 6.35], showing that older children were more fair than younger children in prescriptive judgment. Older children endorsed intergroup fairness over ingroup

support (M = .92, SD = .27, B = 3.67, SE = 1.01, [1.68, 5.66]), while younger children did not show a clear preference (M = .45, SD = .50, B = -.33, SE = .49, [-1.30, 0.64]). We did not find an effect of stakes,  $\chi^2(1, N = 64) = .69$ , p = .41, or an interaction between stakes and age group,  $\chi^2(1, N = 64) = 1.75$ , p = .19.

**Descriptive Judgment.** Younger children tend to think that other children would be biased (M = .37, SD = .49, B = -.81, SE = .47, 95% CI [-1.73, 0.10]), while older children were at chance in their predictions (M = .48, SD = .50, B = -.04, SE = .46, [-0.95, 0.87]). The effect of age group did not reach significance,  $\chi^2(1, N = 64) = 1.47$ , p = .23. We also did not find an effect of stakes,  $\chi^2(1, N = 64) = .05$ , p = .83, or an interaction between stakes and age group,  $\chi^2(1, N = 64) = 1.27$ , p = .26.

Differences and Relations Between Measures. A multilevel logistic model yielded a significant measure by age group interaction,  $\chi^2(2, N = 64) = 15.51$ , p < .001: younger children responded similarly across measures, while older children selected intergroup fairness the least when predicting other children's behaviors: their descriptive judgment was less fair than prescriptive judgment (B = -2.91, SE = .56, 95% CI [-4.02, -1.81]) and their own decisions (B = -2.21, SE = .48, [-3.15, -1.28]); the latter two did not differ (B = -.70, SE = .61, [-1.89, 0.49]). Via a similar correlation analysis as described in Study 2a, we found that children's prescriptive judgment was significantly correlated with their decisions (decision and prescriptive judgments, r = .65, p < .001, age controlled, r = .32, age controlled, r = .06, p = .63; prescriptive and descriptive judgments, r = .20, p = .11, age controlled, r = .14, p = .28).

Comparing Study 2a and 2b. To examine whether children responded differently between family and minimal conditions, we fit a separate generalized linear mixed effects model predicting responses as a function of measure, condition, age group, and their interactions, with a random intercept for participants. To avoid redundancy, we only summarized effects that were not reported above. There was a marginally significant condition by age group interaction,  $\chi^2(1, N = 124) = 2.79$ , p = .095, showing that younger children responded in a less fair way in the family condition (M = .27, SD = .44) compared to the minimal condition (M = .44,SD = .50, B = -.98, SE = .42, 95% CI [-1.79, -0.16]), and older children responded similarly in the two conditions (B = .02,SE = .43, [-0.83, 0.87]). Overall, our results across the two conditions suggest that older children endorsed intergroup fairness over ingroup support regardless of group contexts or stakes, whereas younger children did not endorse intergroup fairness in any contexts (see the online supplemental material for comparisons between Study 1, 2a, and 2b).

#### Discussion

Our results from Study 2 suggest that by age 9 children have developed an adult-like prescriptive (but not descriptive) sense of group-transcendent fairness. These findings raise three further questions: First, it is unclear if the normative sense of group-transcendent fairness might already be present between ages 6 and 9. Second, Study 2 found that older children decided to allocate equally, and it will be interesting to see whether they would actually allocate fairly if given the opportunities. Third, existing studies on children's sense of *fairness between the self and others* have revealed age-related cognitive and behavioral changes (e.g., Blake &

McAuliffe, 2011; Smith et al., 2013). It will be interesting and important to examine if fairness responses may develop in parallel in that situation and in our intergroup situations.

#### Study 3

Study 3 examines the three questions in a novel gift-allocation paradigm. First, we tested children aged 4–9 (with an equal number of children for each age group) to better understand the developmental trajectory. Second, we replaced the decision question with actual anonymous allocations at the end of the session. Third, we added a new *self* versus *other* trial along with the family and minimal trials, to directly compare if fairness responses emerge at the same time when different parties are involved.

#### Method

#### **Participants**

Participants were ninety 4- to 9-year-olds with 15 participants for each age (M = 7.03, SD = 1.73, range 4.01–9.99, 53 female, 37 male; there were 60% White, 6% Hispanic/Latino, 6% Mixed, 3% Black, 2% Asian, and 20% unspecified—parents did not provide race information). Three additional children were tested but excluded from data analyses due to parental or sibling interference (n = 2) and experimenter error (n = 1).

#### Materials and Design

Participants completed a minimal group assignment (as described in Study 2b) and completed all three trials (family, minimal, and self) in a randomized order. Participants were introduced to three kinds of birthday gifts (i.e., big, medium, and small), and were told that the gifts would be later mailed to different people on their birthdays. In a preregistered pretest (https://aspredicted.org/blind.php?x= kp39p2), a sample of 4- to 9-year-olds (N = 30, M = 7.07 years, SD = 1.74, 4.00–9.83, 15 female) responded to all trials with three options available for each question: fairness, ingroup/self support, and outgroup support. We found that outgroup support was chosen at very low rates across conditions and measures, M = .08, SD = .27, t(185) = -12.46, p < .001 (similar to the adult findings in Study S1). Thus, we kept the two-option design for simplicity.

#### Measures

**Prescriptive and Descriptive Judgments.** In each trial, participants were first asked "What do you think is the right thing to do," followed by "What do you think most kids of your age will do." Each question involved two options: that is, give the same medium gifts to both individuals (fairness), or give the big gift to the target individual (self/family or minimal ingroup member) and give the small gift to the stranger (ingroup/self support). To avoid the negative connotation of the word "stranger" and to make all conditions comparable, we referred to the stranger as "someone you don't know and will never meet" across all the conditions. The order of the two options was counterbalanced between participants.

**Behaviors.** Children were shown some tokens and told that more tokens (e.g., from one to three) could be used to exchange bigger gifts (e.g., from small to big). For each trial, children were allocated four tokens in an opaque three-drawer container (one drawer for each

trial) with two compartments. The left compartment was, across trials, for the family member, the ingroup member, or themselves, while the right was for "someone they don't know and will never meet." To ensure anonymity, the experimenter left the room (in laboratory testing) or put up a screen around the child (in museum testing) during allocations. The child rang a bell to indicate they finished each allocation. The experimenter recorded all allocations after the child left.

**Final Intergroup Preference Questions.** In the end, participants were asked two intergroup preference questions (i.e., "Who do you feel closer to?" and "Here is only one token. Who do you want to give it to?"). The majority of participants felt closer to their family member (M = .96, binomial test 95% CI = [0.89, 0.99], p < .001) or ingroup member (M = .96, [0.89, 0.99], p < .001) compared to a stranger, as well as gave the single token to their family member (M = .76, [0.65, 0.84], p < .001) or minimal ingroup member (M = .77, [0.67, 0.85], p < .001) rather than to a stranger.

#### Results

#### **Prescriptive Judgment**

As preregistered, we fit a generalized linear mixed effects model predicting response (1 = *fairness*, 0 = *favoritism*) as a function of trial (family, minimal, or self), age in years (mean-centered), and their interaction, with a random intercept for participant. As shown in Figure 3, there was a consistent age trend across all three trials, with older children being more fair than younger children (family: B = .77, SE = .37, 95% CI [0.05, 1.49]; minimal: B = 2.37, SE = .68, [1.05, 3.70]; self: B = 1.29, SE = .47, [0.36, 2.21]). There was also a significant interaction between age and trial,  $\chi^2(2, N = 90) = 16.57$ , p < .001, driven by the more salient age trend in the minimal trial compared to the other two trials, B = 1.60, SE = .52, [0.59, 2.62] (family) and B = 1.09, SE = .47, [0.16, 2.01] (self). It was not until age 7 that children first begin to consistently endorse intergroup fairness in the self (B = 2.19, SE = .76, [0.70, 3.67]) and minimal (B = 2.49, SE = .85, [0.82,

#### Figure 3

Participants' Responses (1 = Fair, 0 = Bias) in Resource Allocations as a Function of Condition and Age, Predicted by Binomial Linear Regression Model and Faceted by Measure in Study 3



*Note.* Confidence bands represent 95% confidence intervals. See the online article for the color version of this figure.

4.16]) trials, and not until age 8 did they do so in the family trial (B = 1.77, SE = .78, [0.24, 3.31]). Children's prescriptive judgment for the three trials were correlated with or without controlling for age (overall  $\alpha = .78$ ; family and minimal r = .42, p < .001, age controlled r = .37, p < .001; family and self r = .57, p < .001, age controlled r = .54, p < .001; minimal and self r = .65, p < .001, age controlled r = .59, p < .001).

#### Descriptive Judgment

A similar model yielded a main effect of age in children's descriptive judgment: with age children increasingly expected that other children were biased (B = -.33, SE = .15, 95%) CI [-0.62, -0.04]). There was also a main effect of trial: children thought that other children were more fair in the self trial than in the family trial (B = 1.09, SE = .40, [0.31, 1.88]). The two-way interaction was not significant,  $\chi^2(2, N=90) = 1.69$ , p = .43. At age 4 children thought other children were fair in the self (B = 1.58, SE = .57, [0.46, 2.69]) and minimal (B = 1.06, SE = .55, [-0.01, 2.14]) trials, but not in the family trial (B = .48, SE = .54, [-0.58, 1.54]); however, by age 9, they thought other children were biased in the family (B = -1.16, SE = .45, [-2.06, -0.27]) trial and were at chance in their descriptive judgment in minimal (B = -.58, SE = .44,[-1.44, 0.28]) and self (B = -.07, SE = .43, [-0.92, 0.78])trials (Figure 3). Children's descriptive expectations for the three trials were correlated with or without controlling for age (overall  $\alpha = .66$ ; family and minimal r = .39, p < .001, age controlled r = .37, p < .001; family and self r = .44, p < .001, age controlled r = .43, p < .001; minimal and self r = .36, p < .001, age controlled r = .33, p = .002).

#### **Behaviors**

We fit a linear mixed effects model predicting biased behavior (number of tokens given to family, ingroup, or self, original range 0-4, mean-centered for regression models) as a function of condition, age, and their interaction, with a random intercept for participant. We found that children favored their own family member (M = 2.52), SD = 1.06), their minimal ingroup member (M = 2.56, SD = 1.03), and also themselves (M = 2.48, SD = 1.13) when they allocated the resources, B = .52, SE = .09, 95% CI [0.34, 0.70], and these results did not differ by trial, F(2, 174) = .24, p = .79, or by age, F(1, p) = .79, or 86) = 2.21, p = .14. The interaction between age and trial was not significant, F(2, 172) = 1.49, p = .23 (see Figure 4). Children's allocation behaviors in the three trials were correlated with or without controlling for age (overall  $\alpha = .74$ ; family and minimal r = .57, p < .001, age controlled r = .58, p < .001; family and self r = .38, p < .001, age controlled r = .39, p < .001; minimal and self r = .52, p < .001, age controlled r = .50, p < .001).

#### Measure Correlations

Averaging across trials, children's prescriptive judgment was negatively correlated with biased behaviors favoring the self or ingroup (r = -.26, p = .01), age controlled r = -.22, p = .04): those who endorsed fairness norms more strongly were less biased in their actual behaviors. Children's descriptive judgment was also negatively correlated with their biased behaviors (r = -.20, p = .06), age controlled r = -.25, p = .02): those who thought other people would be relatively fair showed slightly lower levels of biased

#### Figure 4

Resource Allocation Behavior as a Function of Trial (Family, Minimal, and Self) and Age (4–9, Continuous), Predicted by Linear Regression Model in Study 3



*Note.* Confidence bands represent 95% confidence intervals. See the online article for the color version of this figure.

behaviors. The correlation between prescriptive judgment and descriptive judgment (r = -.07, p = .50, age controlled r = .04, p = .74) was not significant.

# Discussion

Our results inform the three questions of this study. First, we found that children acquire a normative sense of group-transcendent fairness around ages 7 and 8, the developmental period when children also begin to show advantageous inequity aversion (e.g., Blake & McAuliffe, 2011; Shaw et al., 2016) and recognize that relationships can bias people's decisions (Mills & Grant, 2009). Children's prescriptive judgment was also significantly correlated with less biased behaviors. Second, replicating our results from Study 2, older children did not expect most other children to be fair, suggesting that they did not perceive fairness in these situations to be descriptive norms. At the same time, we found the interesting pattern that with age children predicted other children to be more biased (instead of more fair as in Study 2), a point that we return to in the General Discussion. Third, while older children recognized group-transcendent fairness as morally right, their anonymous allocation behaviors were as biased as younger children's. Finally, our findings support the view that the normative sense of *intergroup fairness* may develop in parallel as their sense of fairness between the self and others: children's prescriptive judgment in the three trials have similar developmental trajectories and were empirically correlated. The results together suggest that children develop a sense of group-transcendent fairness by middle childhood, which is prescriptive but not descriptive by nature.

#### Study 4

Studies 2 and 3 show that the normative sense of grouptranscendent fairness emerges during middle childhood. The gradual development is consistent with the possibility that sufficient cultural exposure might be needed for its development, which gives rise to the question whether the normative sense of group-transcendent fairness is only present in western cultures that explicitly emphasize fairness principles and egalitarian values (Haidt & Kesebir, 2010; Henrich, 2020). To understand whether cultural values shape the developmental end point, in Study 4, we explored whether group-transcendent fairness manifests similarly in Chinese culture, a culture that strongly values ingroup loyalty and obligations (e.g., Fuligni & Zhang, 2004; Qi, 2016; Xu et al., 2007). We tested Chinese adults with the family and minimal conditions of Study 1, given that they are the most informative and there are no equivalent political groups in China to mirror the political condition in Study 1.

#### Method

# **Participants**

We preregistered to recruit 200 Chinese adult participants on WeChat (Chinese equivalent version of Facebook, a popular platform of social media; 135 female, 64 male, 1 other/prefer not to say;  $Mdn_{age} = 24$  years, age range = 18–49 years), with N = 99 in the family condition and N = 101 in the minimal condition. Participants came from diverse regions in mainland China (from North, South, West, and East China). They received 1 RMB as compensation for their participation.

#### Materials, Design, and Measures

The study design and measures are the same as Study 1, except that we did not include the political condition and the supplemental measures. We translated and back-translated the testing materials from Study 1 from English to Chinese. The majority of people (89%–100%) answered the comprehension questions correctly (i.e., "how much do the individuals need the drink?" and "will anybody know you are the person who distributed the drink?"). Participants who provided incorrect answers were asked to read the correct information before they proceeded.

#### Results

We found that testing order, age, or participant education level did not predict participants' responses, and these variables were not included in our models.<sup>2</sup> As in Study 1, we report the dichotomous results below for each measure separately, based on similar linear mixed effects models. The continuous ratings data yielded similar patterns (see the online supplemental material).

#### Decisions

Overall, Chinese participants chose the intergroup fairness option across trials and conditions (M = .66, B = .65, SE = .11, 95% CI [0.45, 0.86]). The overall level of intergroup fairness was lower in the family condition compared to the minimal condition, B = -1.29, SE = .29, [-1.87, -0.71]. We also found a significant interaction between condition and stakes,  $\chi^2(1, N = 200) = 33.74$ , p < .001: Participants were more fair in the family condition when stakes were low than high ( $M_{high} = .20$ ,  $SD_{high} = .40$ ;  $M_{low} = .83$ ,  $SD_{low} = .38$ ), B = 2.99, SE = .49, [2.03, 3.95], but they did not show stakes effects in the minimal condition ( $M_{high} = .79$ ,

#### Figure 5

Participants' Responses (1 = Fair, 0 = Bias) as a Function of Condition and Stakes, Faceted by Measures in Study 4



*Note.* Error bars represent 95% bootstrapped confidence intervals. See the online article for the color version of this figure.

 $SD_{high} = .41; \quad M_{low} = .80, \quad SD_{low} = .40), \quad B = .06, \quad SE = .35,$ [-0.63, 0.75] (Figure 5).

# **Prescriptive Judgment**

Like U.S. participants, Chinese participants endorsed the intergroup fairness option across trials and conditions (M = .91, B =7.04, SE = .95, 95% CI [5.18, 8.91]). The overall endorsement to intergroup fairness in the family condition was not significantly different from the minimal condition, B = 1.28, SE = 1.58, [-1.80, 4.37]. However, we found a significant interaction between condition and stakes,  $\chi^2(1, N = 200) = 20.58$ , p < .001: Participants in the family condition were more likely to endorse intergroup fairness as morally right when stakes were low than high ( $M_{high} = .79$ ,  $SD_{high} = .41$ ;  $M_{low} = .95$ ,  $SD_{low} = .22$ ), B = 7.03, SE = 1.19, [4.71, 9.36]; the stakes effect in the minimal condition was not significant ( $M_{high} = .95$ ,  $SD_{high} = .22$ ;  $M_{low} = .94$ ,  $SD_{low} = .24$ ; B = -.82, SE = 1.07, [-2.92, 1.28]; Figure 5).

### **Descriptive Judgment**

Overall, participants chose the intergroup fairness option across trials (M = .63, B = .54, SE = .10, 95% CI [0.34, 0.75]). The overall level of intergroup fairness was lower in the family condition compared to the minimal condition, B = -1.78, SE = .36, [-2.50, -1.07]. We also found a significant interaction between condition and stakes,  $\chi^2(1, N = 200) = 29.54$ , p < .001: Participants in the family condition thought other people were more fair when stakes were low than high ( $M_{high} = .17$ ,  $SD_{high} = .38$ ;  $M_{low} = .78$ ,  $SD_{low} = .42$ ; B = 3.42, SE = .55, [2.34, 4.51]), whereas participants in the minimal condition did not show an effect of stakes

<sup>&</sup>lt;sup>2</sup> There was an unexpected effect of gender, B = .44, SE = .20, 95% CI [0.05, 0.82]: female (M = .76, SD = .43) were more fair overall than male (M = .68, SD = .47); given its unexpected nature we do not offer a rich interpretation here.

 $(M_{\text{high}} = .76, SD_{\text{high}} = .43; M_{\text{low}} = .81, SD_{\text{low}} = .39; B = .34, SE = .37, [-0.39, 1.07]; Figure 5).$ 

### **Differences and Relations Between Measures**

Since stakes had a substantial effect in this study, we present the results for high- and low-stakes separately. Participants' decisions (high-stakes, B = -5.21, SE = .74, 95% CI [-6.65, -3.76]; lowstakes, B = -3.38, SE = .68, [-4.70, -2.05]) and descriptive judgments (high-stakes, B = -5.54, SE = .77, [-7.04, -4.04]; lowstakes, B = -3.73, SE = .70, [-5.09, -2.36]) were less fair than their prescriptive judgment. Different from U.S. participants in Study 1, Chinese participants did not show discrepancy between their own decisions and descriptive predictions of other people's decisions (high-stakes, B = .33, SE = .33, [-0.32, 0.99]; lowstakes, B = .35, SE = .42, [-0.48, 1.17]). Finally, the condition by measure interaction was significant when stakes were high,  $\chi^2(2,$ N = 200 = 41.16, p < .001, but not significant when stakes were low,  $\chi^2(2, N = 200) = 1.80$ , p = .41: at high-stakes, the discrepancy between decisions and prescriptive judgment was larger in the family condition than in the minimal condition. Measure correlations by condition and stakes are provided in the online supplemental material.

#### **Comparison With Study 1**

Overall, Chinese adults responded similarly to U.S. adults at lowstakes, but they were dramatically different when stakes were high in the family condition, as shown by the three-way interaction among condition, stakes, and culture for each measure (p < .001 on decisions, p = .008 on descriptive judgments, and p = .009 on prescriptive judgments). Notably, Chinese participants still showed robust endorsement to intergroup fairness on prescriptive judgments across all trials, but their descriptive judgments and decisions overwhelmingly showed ingroup support at high stakes in the family condition.

### Discussion

We found that similar to U.S. adults, Chinese adults also endorsed equal allocations between family and minimal ingroups and outgroups as morally right across stakes, suggesting that prescriptive endorsement to group-transcendent fairness is also strongly present in a culture that places greater emphasis on ingroup loyalty and obligations. At the same time, we also observed clear cultural differences in people's decisions: the majority of Chinese participants favored their family members over strangers when resources were highly needed, whereas most U.S. participants indicated intergroup fairness in this situation. The discrepancy between prescriptive judgments and allocation decisions, as well as descriptive norms, was much greater in the Chinese sample than in the U.S. sample. The results suggest that people from both the United States and China have a strong normative sense of group-transcendent fairness, although the decisions people make showed much cross-cultural variation.

#### **General Discussion**

Across four preregistered studies, we found that when allocating common resources, adults from both the United States and China endorsed equal intergroup allocations over ingroup support as morally right, across stake and intergroup contexts (Studies 1 and 4). The normative endorsement to group-transcendent fairness developed later than ingroup support: 4- to 6-year-old children tended to endorse ingroup support, whereas by ages 8 or 9 the majority of children endorsed intergroup fairness over ingroup support (Studies 2 and 3). Across all studies, children and adults did not predict that most other people would be fair toward family members and strangers when the resource was highly needed, suggesting they do not perceive intergroup fairness as a descriptive norm in these situations. Finally, unlike U.S. older children and adults (Studies 1–3) who decided to allocate equally across group and stake contexts, Chinese adults decided to give more resources to their family members than strangers in high-stake situations, revealing cross-cultural variations in people's decisions (Study 4). Taken together, our findings reveal the clear presence of group-transcendent fairness in allocating common resources, which is prescriptive but not descriptive by nature, develops later than ingroup support, and is robust across different group, stake, and cultural contexts.

Many existing theoretical models (e.g., Graham et al., 2017; Haidt, 2012; Rutland & Killen, 2017) discuss fairness as one general moral value without conceptualizing it as inherently contextdependent. Nevertheless, empirical evidence suggests that our sense of fairness very much depends on the parties involved. Fairness between disinterested third parties (e.g., Geraci & Surian, 2011; Shaw & Olson, 2012; Sloane et al., 2012; Sommerville et al., 2013), or between the self and another person (e.g., Blake et al., 2015; Blake & McAuliffe, 2011; Fehr et al., 2008; Sheskin et al., 2014; Smith et al., 2013) have different developmental origins and cognitive bases (Gao et al., 2018). By examining grouptranscendent fairness as a distinct moral value on its own, our findings contribute to a more complete understanding of the nature and development of our sense of fairness in general, supporting the important theoretical view that context is important in moral judgments (Schein, 2020).

The normative sense of group-transcendent fairness is a significant moral achievement, not only because it is much needed in modern societies where intergroup interactions are ubiquitous (Henrich et al., 2010), but also because its competing value-ingroup support-have deep evolutionary and moral roots. Our moral values, including the sense of fairness, may have mainly evolved to facilitate cooperation within rather than between groups (e.g., Brosnan & de Waal, 2014; Curry et al., 2019; Haidt, 2007, 2012; Tomasello & Vaish, 2013). It is well established that children and adults not only naturally favor and support ingroup members more than outgroup members (e.g., Balliet et al., 2014; Benozio & Diesendruck, 2015; Chae et al., 2022; Dunham, 2018; Fehr et al., 2008, 2013; Goette et al., 2006; Kahane et al., 2018; Law et al., 2019; McManus et al., 2020; Olson & Spelke, 2008; Shaw et al., 2017), but also view prioritizing and being loyal to ingroup members as morally good (Curry et al., 2019; Haidt, 2012; Misch et al., 2016, 2018). These ingroup-oriented values and tendencies have inherent tension with values that promote equal treatment of ingroup and outgroup members (Graham et al., 2009, 2017; Haidt, 2012). Despite that fairness has been theorized to have the potential to promote egalitarian concerns across group boundaries (e.g., Graham et al., 2017), direct evidence has been very limited, and it has remained unclear if fairness would override ingroup support in any circumstances. Our findings contribute to the literature by demonstrating that older children and adults clearly endorse group-transcendent fairness over ingroup support when allocating common resources, even when the interest of close ingroup members are at stake. Our research thus provides empirical support to relevant moral and developmental theories (Graham et al., 2017; Haidt, 2012; Rutland & Killen, 2017; Van Bavel et al., 2022), which can also form the basis for further theorizing on how fairness and ingroup support values coexist in our mind.

Our findings reveal that group-transcendent fairness is endorsed later than ingroup support and is not firmly in place until age 8 and above. This is consistent with the findings that by age 7 or 8, children prefer having equal amounts of resources as compared to peers even when they could have more (i.e., advantageous inequity aversion, Blake & McAuliffe, 2011; Shaw et al., 2016). In our own study, children's responses to situations involving fairness between ingroup and outgroup members or between the self and another person were similar and correlated. This parallel development suggests that some common underlying understanding or values may be developing around middle childhood. For example, one possibility could be that children develop a general realization that the self, or the extended self (e.g., ingroup members), should not be prioritized over people who are less related to the self. Given the centrality of self-interests in our survival, it is understandable that fairness responses in situations involving (extended) self-interests develop later than in disinterested third-party situations. Indeed, it is a moral and cognitive achievement that we even develop this sense of fairness that overrides (extended) self-interests at all . It would be important for future research to investigate the social cognitive abilities that enable us to have this moral perspective shift in middle childhood.

Across studies, our findings suggest that the group-transcendent sense of fairness is prescriptive but not descriptive by nature. Children across ages did not predict that most people would allocate equally to ingroup and outgroup members across group contexts; adults in the United States and even more dramatically in China also predicted that most people would allocate more resources to family members in high-stake situations. These are in sharp contrast to older children and adults' strong normative endorsement, and similar normative-descriptive discrepancy has been observed in previous research (e.g., DeJesus et al., 2014). It is known that children and adults often infer "ought from is" (Eidelman & Crandall, 2014; Roberts, 2022; Tworek & Cimpian, 2016), but our findings suggest that children and adults could not have made the prescriptive judgment of group-transcendent fairness based on their descriptive beliefs, since their descriptive beliefs were markedly different and much more biased than their prescriptive judgment. Therefore, the normative sense of group-transcendent fairness is more likely to reflect individuals' genuine moral belief rather than merely reflect our observations of how most people actually behave in life. It is worth noting that we asked child participants about their expectations for other children. More research is needed to understand how children make descriptive judgments. For example, an interesting question is whether children might attribute more intergroup fairness responses if they were asked about expectations about adults or the "nicest kids."

We found that adults from China morally endorsed grouptranscendent fairness as strongly as U.S. adults did, despite the fact that Chinese culture places much stronger emphasis on responsibilities to families and ingroups and less emphasis on egalitarian values than U.S. society does (e.g., Fuligni & Zhang, 2004; Qi, 2016; Xu et al., 2007). This finding suggests that the prescriptive endorsement may not simply reflect the explicit discourse in specific cultures but reflect more fundamental cognition and values. At the same time, there was much variation in people's *decisions* across cultures. Chinese adults overwhelmingly intended to allocate more resources to family members in high-stakes situations, unlike the majority of U.S. adults who decided to allocate equally in this situation. In fact, among U.S. children and adults, decisions were more in line with prescriptive judgments than descriptive judgments (Studies 1-3). It is possible that in western societies where egalitarian values are more explicitly emphasized, the normative values are more internalized or socially incentivized to guide people's decisions. In contrast, perhaps in societies where ingroup obligations are more emphasized, egalitarian values may not have sufficient motivational power such that people are more likely to base their decisions on emotional concerns for close ingroup members' welfare. One way to shed light on these possibilities is to investigate if grouptranscendent fairness is an intuitive (fast) or reflective (slow) type of moral judgment among older children and adults across stakes in different cultures. Existing research has established that there are fundamental moral values that are endorsed across diverse cultures (Curry et al., 2019; Haidt, 2007, 2012), and our findings suggest it would be worthwhile to further theorize and examine mechanisms in influencing the internalization and actualization of putatively fundamental values.

Our findings do not necessarily contradict previous findings on children and adults' moral valuation of partial treatment. In previous studies that found participants morally prioritized ingroups (Kahane et al., 2018; Law et al., 2019; McManus et al., 2020; Shaw et al., 2017), participants had to endorse either favoring ingroup members or outgroup members. In our own Study 3, when asked to allocate a single token, most children across ages also chose to give it to the ingroup member. Our major findings, that older children and adults view intergroup fairness as more morally right than ingroup support when both options are available, are compatible with and complement the findings that they morally prioritize ingroups over outgroups (when intergroup fairness is not an available choice).

At the same time, our findings also do not imply that grouptranscendent fairness would override preferential treatment in all situations when both options are available. In particular, our situations involve allocating common resources, and it is conceivable that people may view it as more morally justified to favor ingroup members when sharing privately earned and owned resources. For example, it has been found that when offering personal help, American adults and children perceive more limited obligation to help strangers than closely related ingroup members (Baron & Miller, 2000; Miller et al., 1990). It is thus not known if our findings may apply to broader forms of helping beyond allocating common resources. When it is only possible to help either ingroup or outgroup, or the helping involves personal costs, people might not endorse intergroup fairness as strongly. In addition, it is an open question if people might have more biased judgments about allocating resources that convey social and emotional meaning. In our Study 3, for example, when allocating birthday gifts, children's prescriptive judgments were less fair for the family trial than the other trials, and older children expected most other children to bias their family. Finally, our situations involve resource allocations between one ingroup member and one outgroup member, which children could be more familiar with than resource allocations between whole groups. But it is possible that children may perceive it as more justified to bias the whole ingroup versus outgroup, as more ingroup members' interests are at stake in whole group allocations. The main contribution of our studies is not to reveal that preferential intergroup resource allocation does not exist, but to reveal that the intergroup fairness value is also endorsed. It will be important for future research to further examine the presence and scope of grouptranscendent fairness in broader contexts.

We examined the nature and development of group-transcendent fairness, but group-transcendent views are also present in other related social and moral values, such as "moral expansiveness" (e.g., Crimston et al., 2016, 2018) and "identification with all humanity" (e.g., McFarland et al., 2012, 2013). These measures focus on people's tendencies to identify with and grant moral status to wider circles of entities beyond immediate ingroups. Theoretically, it is possible that people who endorse those values may also treat ingroups and outgroups more equally. It will be important to examine whether these tendencies share common psychological manifestations and mechanisms. Empirical studies on the links between these concepts and comparisons of their developmental trajectories will provide valuable insights to understand the psychology of group transcendence.

Across four preregistered studies, we found that one such moral value-group-transcendent fairness-emerges during middle childhood and is clearly present among adults in both the United States and China. Our findings reveal clear normative endorsement to grouptranscendent fairness by middle childhood, which is prescriptive but not descriptive by nature, is robust across different group and stake contexts, and is strongly valued across cultures. The presence and development of group-transcendent fairness, together with the development of fairness in situations involving third parties and the self, gives us a more complete understanding of the contextualized nature of fairness. Taken together, despite our natural tendency to love and prioritize ingroup members throughout history, our findings suggest that we nevertheless develop a sense of group-transcendent fairness that overrides ingroup support in allocating common resources-a moral achievement that may help promote better intergroup relations and enlarge the boundaries of modern civilizations.

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