The development of intergroup resource allocation: The role of cooperative and competitive in-group norms

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Abstract

The present study investigated age-related changes in the intergroup allocation of resources depending on whether the ingroup norm was competitive or cooperative. Participants included children (M_{age} = 8.69), adolescents (M_{age} = 13.81) and adults (M_{age} = 20.89), (N = 263) who were inducted into simulated groups and informed about an ingroup norm of either cooperation or competition. The goal context for the resource allocation task was either prosocial (to benefit the welfare of animals in a charity event) or group-focused (to win a national inter-school competition). They were then asked to allocate resources between an ingroup and outgroup, and to justify their allocation. The findings showed that children allocated significantly more resources to their ingroup in order to achieve a prosocial goal, but only when the ingroup norm was competitive. In contrast, adolescents and adults allocated resources equally irrespective of the ingroup norm. These findings showed that children prioritized the moral goal of welfare over that of fairness when their ingroup favored competition, while adolescents and adults always prioritized fairness. Older participants justified their equal allocation with greater reference to the importance of fair competition. This study demonstrated an important developmental shift in how the prioritization of moral goals during intergroup resource allocation is influenced by ingroup norms of competition and cooperation.

Key words: Moral development; Group norms; Resource allocation; Intergroup bias

The development of intergroup resource allocation: The role of cooperative and competitive in-group norms

Resource allocation involves weighing competing considerations, including moral (e.g., fairness, welfare) and social goals (e.g., advantaging my group, do what is expected by my group). Recently attention has turned to examining how the development of such prioritization is related to resource allocation between social groups (i.e., intergroup resource allocation) (Rutland & Killen, 2017). In this study, we investigated, for the first time, age-related differences in how the prioritization of moral goals during intergroup resource allocation is influenced by ingroup norms of competition and cooperation. Research shows that children adhere to moral norms that are seen as obligatory and not contingent upon dictates or majority agreement (Smetana, 2006; Turiel, 1998) and they view the equal allocation of resources as an important moral principle (Rizzo & Killen, 2016; Schmidt, Svetlova, Johe, & Tomasello, 2016; Wittig, Jensen, & Tomasello, 2013). However, less is known about how they prioritize this notion of fair resource allocation in goal contexts that also highlight other moral principles, such as the welfare of others, and how children reconcile their resource allocation with group-level information (e.g. peer group norms that advocate competition).

Adherence to moral principles that are viewed by individuals as generalizable (e.g., welfare, fairness and justice) has been shown to vary as a function of context and age (Turiel, 2015). For example, research has shown that children and adolescents often have to coordinate and weigh multiple moral principles which involve giving priority to one over the other (e.g., priority to others' welfare over rights such as freedom of expression) (Nucci & Turiel, 2009, Turiel, 2015). These findings suggest that how children consider moral concepts by prioritizing specific concerns over others (e.g., the welfare of a needy recipient versus

being fair by being equal to everyone) is likely to change with age and be dependent on the social context.

To investigate the development of how children prioritize the moral concepts of fairness and welfare when allocating resources between groups, we examined decision making across two goal contexts. These contexts were either prosocial (i.e. the goal of the activity was advance the welfare of others) or group-focused (i.e. the goal of the activity was to help the ingroup succeed). Children, adolescents and young adults were asked to allocate resources between their ingroup and an outgroup involved in an art contest, and they were told the winning group in this context would then be one of two goal contexts. In the prosocial goal context, the winning team would aim to raise the most money possible for an animal shelter by selling their art. In the group-focused goal context, participants were informed they would compete against other teams and aim to win a nationwide arts contest.

Importantly, we chose to manipulate these goal contexts following the initial introduction of a competitive intergroup arts competition. This arts competition context has previously been used to induct children into simulated group situations (McGuire, Rutland, & Nesdale, 2015; Nesdale, Durkin, Maass, & Griffiths, 2005; Nesdale & Lawson, 2011). Intergroup allocation of resources often takes place in competitive contexts like this (Abrams, Van de Vyver, Pelletier, & Cameron, 2015; McGuire, Manstead, & Rutland, 2017). Though a competitive intergroup situation is not necessarily incompatible with being prosocial (Pappert, Williams, & Moore, 2017; Zhu, Guan, & Li, 2015). For example, charity sports events (e.g., charity soccer match or charity running event to raise money for a worthy cause) ask participants to compete with one another in order to achieve a prosocial end goal. Decision making in these contexts requires individuals to carefully consider multiple moral goals (i.e.. benefit the welfare of others, be fair and share resources equally) with their desire to compete and favor the ingroup. For the first time, we examine such a situation by asking participants

to allocate resources in a competitive intergroup context that is followed by a prosocial or group-focused goal.

Children have a strong desire to achieve prosocial goals. For example, children between 8 and 13-years-old will set aside group membership concerns to help outgroup members who are in need (Sierksma, Thijs, & Verkuyten, 2014). Similarly, children in this age range consider helping those in need to be a moral obligation (Sierksma, Thijs, Verkuyten, & Komter, 2014). Therefore, children in the present study were expected to prioritize the moral concept of welfare, and aim to maximize chances of achieving the prosocial goal by allocating more resources to their own group, even though such a decision could be seen as conflicting with the moral principle of fairness. In contrast, adolescents and adults were predicted to perceive prosocial helping as more discretionary and not a justifiable reason to contradict the moral principle of equal allocation. Similarly, adolescents have recently been shown to attribute importance to the notion of fair competition when allocating resources in competitive intergroup contexts, so all groups have an equal opportunity to compete in the competition (McGuire et al., 2017). Therefore, we expected adolescents and adults to prioritize fairness by allocating resources equally between the ingroup and outgroup even when the goal context was prosocial.

Intergroup processes are also an important contextual influence on moral behavior or judgments from middle childhood onwards (Killen & Rutland, 2011; Rutland & Killen, 2017). This is evident in research concerning social inclusion decisions that involve balancing moral and social considerations (Mulvey, Hitti, Rutland, Abrams, & Killen, 2014). In line with moral norms of fairness, the exclusion of others based on stereotyped characteristics is judged to be unacceptable. However, there are situations where exclusion based on group characteristics is judged as more legitimate. For example, most (but not all) children judge the exclusion of a boy from a ballet class based on their gender as wrong, justifying this with

reference to concepts of fairness and equality. However, when the number of available places in a group is limited, children often use stereotype information and exclude the boy by reasoning that they will be less good at ballet and disrupt the class activity (Killen & Stangor, 2001). Here, children apply social information to the process of morally relevant decision-making.

Despite the increasing focus on the coordination of moral and social considerations in children's judgments, relatively little research has focused on how intergroup resource allocation decisions vary as a function of intergroup factors (e.g., ingroup norms). Resource allocation is an important setting in which children learn about equality, equity and justice (Elenbaas & Killen, 2016; Rizzo, Elenbaas, Cooley, & Killen, 2016). Nonetheless, resources are often allocated by children in favor of specific groups (Dunham, Baron, & Carey, 2011; Rizzo & Killen, 2017). At the intergroup level, one variable known to influence resource allocation decisions are ingroup norms. Research has shown that when both an ingroup *and* an outgroup support a norm of competition, children and adolescents allocated a greater share of resources to their ingroup (McGuire et al., 2017). In this case, the coordination of two sources of intergroup information acted as an important contextual cue for biased intergroup resource allocation.

The present study extended previous research by examining how two types of explicit peer ingroup norms, one cooperative and one competitive, bare on intergroup resource allocation decisions in different goal contexts. Participants were told that their group expected them to either help (cooperative norm) or never help (competition norm) the outgroup. Research shows that from early to middle childhood, a competitive context reduces a preference for a fair distribution of resources (Shaw, DeScioli, & Olson, 2012) as well as prosocial resource allocation (Pappert et al., 2017). Research has also shown that, from approximately seven years-old, a competitive intergroup context decreases outgroup pro-

sociality and increases intergroup bias (Abrams, Van de Vyver, Pelletier, & Cameron, 2015). Given the well-documented importance of ingroup norm information from middle childhood (McGuire et al., 2015; Rutland, Hitti, Mulvey, Abrams, & Killen, 2015), a strong influence of ingroup norm on resource allocation was expected amongst children in this study. Specifically, when the ingroup norm was competitive, these participants were expected to show greater ingroup biased resource allocation than when the ingroup norm was cooperative.

Finally, this study also examined participant's social reasoning by asking them to justify their allocations. We expected the use of different reasoning categories to be contingent upon the ingroup norm, as well as participant age and their resource allocation strategy. Specifically, in the case of participants who chose to allocate equally, we expected a focus on moral reasoning. This was expected to be the case especially when participants allocated equally counter to an ingroup norm of competition. In this case, participants should emphasize the moral basis of their allocation as a challenge to the ingroup norm of competition.

With age, we expected to observe more nuanced moral domain reasoning that incorporates ideas regarding fair competition (i.e. one group having more means the competition will not be fair) to justify an equal allocation. Recent work has demonstrated the emergence of this from of moral reasoning from childhood to adolescence (McGuire et al., 2017). This type of reflective reasoning is coherent with the more coordinated and discretionary resource allocation decision-making expected to emerge in adolescence. In contrast, participants who allocated more to their ingroup were expected to justify this behavior exclusively in terms of group functioning, with a focus on loyalty to the group and success in the intergroup competition. In this case there is no possible moral argument to be made for demonstrating explicit ingroup bias. Instead, participants should justify their behavior as a strategy to advance the relative position of the ingroup. Given the intergroup

nature of the allocation decision, we did not expect participants' reasoning to differ as a function of the goal context condition. When justifying an allocation decision between groups, we expected the group norm to have a greater influence on participants' reasoning justifications than the goal context would.

Method

Participants

Participants (n = 263) were recruited from a metropolitan area in the south-east of England. Participants included 103 (47 Female, 56 Male) 8- to 11-year-olds (M_{age} = 8.66, SD = 0.50), 90 (50 Female, 40 Male) 13- to 15-year-olds (M_{age} = 13.83, SD = 0.71), and 70 (61 Female, 9 Male) Adults (M_{age} = 20.89, SD = 2.83). Power analysis for an ANOVA with 12 groups was conducted in G*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.95, and a medium effect size (f = .025) (Faul, Erdfelder, Lang, & Buchner, 2007). Based on these assumptions, the desired sample size was 251 participants. The sample consisted of approximately 50% White British, 17% South Asian British, 15% Black British, and 12% other ethnic groups (including dual heritage British, Chinese British, and Eastern European), with 6% (unknown). The ethnic mix of these schools reflected the population of the metropolitan area in which testing took place. The children and adolescents attended schools serving lower to middle socioeconomic (SES) populations, ethnically representative of the sampling population. The adult participants attended a university in the same area and participated as part of an undergraduate module.

Procedure

Intergroup competition: Participants individually completed all measures using Qualtrics online survey software on a laptop or tablet computer in their classroom. To establish group membership, participants were told that they would be taking part in an inter-institution art competition between their own and a local rival institution (school or

university). They were shown an illustration of four same-gender individuals representing their own institution for the competition (ingroup), and a separate illustration of their rival institution (outgroup). They were asked to pick a group name, color, and logo to further instill feelings of ingroup membership. This method has been successfully shown to produce strong ingroup preference (McGuire, Rutland, & Nesdale, 2015; Nesdale & Dalton, 2011).

Ingroup peer norm: The norm for the competition was established by telling participants that their group had a "secret message" for its members. This message read:

"*Hello we're really happy you're going to be on our team for this drawing competition. We just have one rule if you're going to be on our team and that is, you should try and make our team win…*
(Competitive ingroup norm) …and never help the other teams in the competition
(Cooperative ingroup norm) …but also help the other teams in the competition.
Good luck!"

These norms were designed to ensure they were believable in the context of the local competition, particularly given the strong expectation that individuals should support the ingroup during any competition (Bauer, Cassar, Chytilová, & Henrich, 2013; Bowles, 2006), hence the focus on trying to make your institution's team win in both norm conditions. Participants answered a manipulation check question to ensure that they had paid attention to and understood their ingroup norm: "*Based on what you just read, does your team want to help other teams in the competition?"* (Yes/No).

Goal context: Next the goal context of the scenario was established by telling participants that after the inter-institution art competition the winning group would either participate in an 'United Kingdom National Art Competition' (group-focused goal context) or an 'United Kingdom Charity Art Event' (prosocial goal context).

In the group-focused goal context, participants were told their aim would be to display the best art to beat the other institutions in the competition; "*The winning school/university will go on to represent London in the UNITED KINGDOM NATIONAL ART COMPETITION, which is the highest level of art competition in the country that schools/universities can take part in. This will be a big day where winning schools/universities from all over the United Kingdom compete to display the best art.*"

In the prosocial goal context, the aim was to work together with the other institutions to raise as much money as possible for an animal shelter; "*The winning school/university will go on to represent London in the UNITED KINGDOM CHARITY ART EVENT, where paintings and drawings will be sold to raise money so homeless animals are given somewhere to live. This will be a big day where schools/universities from all over the United Kingdom work together and help raise money for animals in need*"

Participants were told that the student councils of their institution and the rival institution had collectively raised £100 to distribute between the ingroup and the outgroup. This money was to be used to purchase special materials; beyond the basic art supplies provided to all groups, which in turn could help them produce better art. They were informed that their group had voted to either give £50 to both groups (cooperative ingroup norm condition), or £80 to their ingroup, and £20 to the outgroup (competitive ingroup norm condition). The outgroup was always said to have voted in favor of the opposite strategy to the ingroup.

Participants were asked to distribute £100 between their own institution and the other institution, with a reminder that the money would be used to purchase special materials for use in the art competition. Participants allocated money to each institution using a slider from £0 to £100 with increments of £1. Resource allocation reasoning was measured using an open-ended question ("*Why did you split the money the way you did?*").

All measures were approved by the Goldsmiths, University of London Psychology Department Ethics Committee Review Panel as part of the project "The influence of an ingroup deviant on children and adolescents' resource allocation decision-making".

Data Preparation

The coding system assigned responses to five conceptual categories based on previous research (Killen, Rutland, Abrams, Mulvey, & Hitti, 2013). Each response was coded in to one of the following categories; (1) *Fairness,* generic references to fairness (e.g., "I split it that way because it's the fair thing to do"), (2) *Equality,* references to distributing resources equally between individuals/groups (e.g. "*it's important that both groups get the same amount of* money"), (3) *Fair Competition,* references to ensuring the maintenance of fair competition between groups (e.g. *"we shouldn't have an advantage, otherwise we won't be able to tell who has won fairly"*), (4) *Group Functioning,* references to group norms, group loyalty, winning the competition (e.g., "*Because that's how the team wanted to do it*"), or (5) *Personal Choice,* references to personal autonomy (e.g., *"It's my choice how to share the money*"). Two coders conducted the coding, one of whom was blind to the hypotheses of the study. Analysis of agreement between two coders across 25% of the responses (n = 80) revealed strong inter-rater reliability (Cohen's $\varkappa$ = .95).

Resource allocation reasoning was expected to differ as a function of different types of allocation strategies. Therefore, the sample was further sub-coded for these analyses based on how participants allocated money between the groups. Participants who allocated equal amounts of money to both groups (n = 127) were coded as 'Equality Strategists'. Participants who allocated more money to the ingroup (n = 83) were coded as 'Ingroup Serving Strategists'. Participants who allocated more to the outgroup were excluded from the reasoning analysis due to a small cell size (n = 4).

Participants were excluded from the analyses if they answered the ingroup norm manipulation check question counter to the group norm manipulation. Those participants (n = 75) were split as follows by age (child, n = 39; adolescent, n = 26; adult, n = 10), gender (female = 49, male = 26), and ingroup norm (competitive = 26, cooperative = 49). A non-significant chi-square test suggested that these exclusions were random as a function of age and ingroup norm, X^2 (2, n = 75) = 3.93, p = .15. The analyses reported here included a total sample of 263 participants (children, n = 103; adolescents, n = 90; adults, n = 70).

Data Analytic Plan

Resources allocated to the ingroup were subjected to a 3 (Age: children, adolescents, adults) x 2 (Ingroup norm: competitive, cooperative) x 2 (Goal context: group-focused, prosocial) univariate ANOVA. Initial analyses did not reveal differences between adolescent and adult participants; therefore, these categories were collapsed to two levels for the purposes of the central analyses (age: children, adolescents/adults). To test for age group differences, the effect of age was tested using weighted planned contrasts to compare children's resource allocation against adolescents and adults, as well as interactions between this planned age contrast, ingroup norm and goal context. Weights of +2, -1 and -1 were assigned to children, adolescents and adults respectively. The direction of these weights was reflective of our prediction that children would demonstrate greater ingroup bias than older participants. This ANOVA analysis is presented below, and where appropriate, follow up simple main effects tests were conducted with Bonferroni corrections for multiple comparisons applied.

Resource allocation reasoning data was analyzed using a multinomial logistic regression model. We modelled the effects of Age Group (Children, Adolescents/Adults), Allocation Strategy (Equality, Ingroup Serving), and Ingroup Norm (Competitive, Cooperative) across four conceptual categories (fairness, equality, fair competition, group

functioning). Fewer than 5% of participants (n = 5) used the personal choice category, and so these responses were omitted from the analyses, along with participants who used the "other" category (n = 69).

Results

Resource Allocation

Analyses revealed a significant three-way interaction between Age, Ingroup norm and Goal context, $F(2, 228) = 5.86$, $p = .016$, $\eta^2 = .03$ (see Figure 1). How participants chose to allocate resources depended not only upon their age group, but also what ingroup norm they were prescribed and the goal context in which the allocated resources.

Amongst children, in line with our prediction, there were significant differences in resource allocation as a function of ingroup norm when the goal context was prosocial (i.e. a United Kingdom Charity Art Event). When the ingroup norm was competitive, children in this context (M = 70.52, SD = 22.50) allocated a significantly greater share of the resources to their ingroup than when the ingroup norm was cooperative (M = 52.90, SD = 9.28; p = .002). However, for children in the group-focused goal context (i.e. a United Kingdom Art Competition), there was no significant difference between allocations in the competitive ingroup norm condition (M = 53.25, SD = 31.72) and cooperative ingroup norm condition (M = 63.21, SD = 19.98; p = .08).

As expected, amongst adolescent and adult participants there were no significant differences in resource allocation in the group-focused goal context as a function of ingroup norm. Adolescent and adult participants' allocations in the cooperative ingroup norm condition (M = 60.92, SD = 15.42) did not differ significantly from those in the competitive ingroup norm condition (M = 57.04, SD = 17.44; p = .32). Likewise, in the prosocial goal context, adolescent and adult participants' allocations did not differ between the cooperative ingroup norm condition (M = 55.48, SD = 10.36) and the competitive ingroup norm condition

(M = 55.57, SD = 11.68; p = .98).

Resource Allocation Reasoning

To test our predictions about reasoning we used a multinomial logistic regression approach that modelled the effects of age group, ingroup norm and allocation strategy. The overall model was significant, LR $\chi^2(33, N = 189) = 95.52$, Nagelkerke $R^2 = .44$, $p < .001$. There was a significant main effect of Age Group on resource allocation reasoning, $\chi^2(3, N = 189) = 8.51$, $p = .04$. Children made greater reference to strict fairness than fair competition, $\beta = -.53$, $\chi^2(1) = 6.39$, $p = .01$, Exp(B) = 3.40, 95% CI [1.32, 8.77]. There was also a significant main effect of Strategy on resource allocation reasoning, $\chi2(3, N = 189) = 53.19$, $p < .001$. Specifically, equality strategist participants were more likely to justify their allocation strategy with reference to fairness than group functioning, $\beta = -2.69$, $\chi2(1) = 37.53$, $p < .001$, Exp(B) = .07, 95% CI [.29, .16]. The main effect of ingroup norm was not significant, $\chi2(3, N = 189) = 7.50$, $p = .06$.

There was a significant two-way interaction between age group and ingroup norm, $\chi2(15, N = 189) = 32.43$, $p = .006$. Similarly, there was an interaction between age group and strategy, $\chi2(15, N = 189) = 69.67$, $p < .001$. Finally, there was an interaction between ingroup norm and strategy, $\chi2(9, N = 189) = 61.45$, $p < .001$. These interactions were qualified by a significant three-way interaction between strategy, age group and ingroup, $\chi^2(21, N = 189) = 81.97$, Nagelkerke $R^2 = .39$, $p < .001$. Given some small cell sizes, we used Fisher's exact tests and follow up z tests with Bonferroni correction for multiple comparisons to examine differences in Resource Allocation reasoning as a function of Age, Ingroup Norm and Strategy. All comparisons reported were significant at the $p < .05$ level, and reported means are proportional percentages of reasoning.

First, there were significant differences in children's reasoning as a function of strategy in the competitive ingroup norm condition, Fisher's exact = 9.48, $p = .01$ (see Table

1). Amongst children who adopted an equality strategy in the competitive ingroup norm condition, there was greater reference to fairness (M = .63) than equality (M = .13), fair competition (M = .19) or group functioning (M = .06). These children challenged a norm they perceived to be unfair by both allocating resources equally and justifying this with reference to the moral obligation to be fair.

Children who allocated in favor of their ingroup made greater reference to group functioning (M = .57) as a justification for their allocation than fairness (M = .36) or fair competition (M = .07). For these participants, benefitting the ingroup in order to succeed in the competition outstripped any concern for fairness.

There was no significant difference in the use of reasoning categories as a function of strategy amongst children in the cooperative ingroup norm condition, Fisher's exact = 4.89, p = .15. Equality strategists in this condition referenced fairness (M = .65), equality (M = .09), fair competition (M = .09) and group functioning (M = .17). Use of these categories did not differ significantly from one another. Similarly, ingroup serving participants in the cooperative ingroup norm condition made reference to fairness (M = .33), fair competition (M = .11) and group functioning (M = .56). However, use of these categories did not differ significantly from one another.

Furthermore, reasoning amongst adolescent and adult participants differed significantly as a function of strategy in the competitive ingroup norm condition, Fisher's exact = 14.97, p = .001 (see Table 2). Adolescents and adults who allocated resources equally between the two groups when the ingroup norm was competitive made significantly greater reference to fairness (M = .55) than equality (M = .05), fair competition (M = .28) or group functioning (M = .13). These participants challenged the competitive ingroup norm with reference to generic expectations for fairness; "*it's unfair for us to have more money"*. When

challenging ingroup norms of competition through equal allocation, older participants relied upon broad arguments related to the central importance of fairness.

By contrast, adolescents and adults who allocated a greater share of resources to their ingroup when the ingroup norm was competitive made greater reference to group functioning (M = .50) than fairness (M = .10), equality (M = .05) or fair competition (M = .35). These participants justified favoring their ingroup with reference to advancing the position of the group to win the competition, "*so that our team gets more money to buy special materials"*. For adolescents/adults who favored their ingroup in a competitive ingroup situation, the need to benefit one's ingroup was highly important.

Similarly, there were significant differences in the use of reasoning categories as a function of strategy amongst adolescents and adults in the cooperative ingroup norm condition, Fisher's exact = 28.45, $p < .001$. Adolescents and adults who allocated equally when the ingroup advocated cooperation made equal reference to fairness (M = .41) and fair competition (M = .31), both of which differed significantly from references to equality (M = .05) and group functioning (M = .23). Participants who justified an equal allocation with reference to fair competition discussed the importance of ensuring that the most talented institution would win the competition, irrespective of access to resources; "*So that we can see which team has the best potential – it's not fair if we won't be able to see that."* When older participants' behavior is coherent with normative expectations, and they don't have to challenge a norm they perceive to be unfair, they use more nuanced forms of moral domain reasoning.

In contrast, adolescents and adults who allocated resources in favor of their ingroup counter to a cooperative ingroup norm made greater reference to group functioning (M = .86) than fairness (M = .11) or equality (M = .04). For older participants who allocated in favor of their ingroup, even when the ingroup supported cooperation with the outgroup, the focus was

almost exclusively upon achieving the social goal of success in the art contest; "*So that we* (participant's ingroup) *have a good chance of winning*".

Discussion

This study showed for the first time a developmental trend from childhood into adolescence in how the prioritization of moral goals during intergroup resource allocation is affected by an ingroup norm of competition. It was found that in a prosocial goal context, which emphasized welfare of others, only children showed significantly more ingroup biased resource allocation when their group supported a competitive ingroup norm than when their group supported a cooperative ingroup norm. As predicted, children prioritize the moral concept of welfare, and tried to maximize the possibility of realizing the prosocial goal by allocating more resources to their own group, despite this action conflicting with the moral principle of fairness. In contrast, adolescents and adults allocated resources equally irrespective of the ingroup norm, showing that they prioritized the competing moral goals in a different way by judging prosocial helping as more discretionary and fairness as having primacy. It was also shown that older participants justified their equal allocation with greater reference to the importance of fair competition in contrast to children who reasoned mostly using simpler notions of fairness.

Interestingly, children only prioritized the moral concept of welfare (helping the animal charity) over fairness by showing ingroup bias when their group advocated for a competitive norm. In the situation where the peer level norm was competition, it appears children demonstrated ingroup bias as a means to reach a prosocial goal. Children weighted the prosocial goal as highly important, but the most unambiguous attempt to achieve this goal using an ingroup biased approach was only observed when this behavior met with group normative expectations for competition. In this case biased resource allocation fitted with both the prosocial moral goal of helping the charity cause *and* the group-level norm of

advancing the competitive position of the ingroup. It appears children only favored their group in the prosocial goal context when there was a strong peer level norm for advancing the competitive position of their group.

In contrast, adolescents and adults in each context compared the relative weight of the conflicting moral goals (welfare and fairness) during their allocation decision, along with their group's social norm and decided to not allocate resources unequally. In the prosocial goal context, adolescents and adults did not allocate significantly more resources to their ingroup when their ingroup held a competitive norm, instead opting to allocate resources equally between the two groups. Where children see reaching for a prosocial goal as a moral obligation, and prioritize this over fairness when there is peer level ingroup norm of competition, older individuals recognize the discretionary nature of this judgment and temper their ingroup bias accordingly. These findings fit with research showing that with age individuals develop an increased capacity to coordinate conflicting moral concepts with the demands of the social context and understand that contextual variations make the steadfast application of all moral norms less obligatory and more discretionary (Nucci & Turiel, 2009; Turiel, 2015).

Participants' reasoning provided an insight in to the relative weight given to moral versus social goals as a function of age. Older participants who allocated resources equally between the two groups varied their justifications for their allocations according to the ingroup norm. Adolescents and adults who shared resources equally used significantly more fairness reasoning to explain their allocation decision in the context of a competitive ingroup norm. In contrast, in the cooperative ingroup norm condition older participants also referenced the importance of adhering to the standards of a fair competition. This demonstrates that for adolescents and adults, allocating more to an ingroup would not be coherent with their desire to maintain standards of fair competition in an intergroup contest,

especially when the ingroup supports cooperating with the outgroup. This reasoning is reflective of the desire to balance the various moral and social elements of this complex intergroup allocation decision.

By contrast, children's reasoning in the cooperative ingroup norm condition did not differ as a function of their resource allocation strategy. In this condition, all children predominantly referenced fairness to justify their allocation decision, although there were also references to the benefits of ingroup biased allocation, and the group functioning importance of adhering to group norms. Reasoning justifications amongst children again, were more unambiguous than those used by adolescents and adults. Where older participants varied their reasoning to reflect their strategy within norm conditions, children predominantly relied upon broad concepts of fairness, alongside concerns for group loyalty.

The present study inducted participants into simulated groups and informed them they would be participating in an intergroup arts competition. In turn, they were informed this initial level of competition would be followed by a higher-level goal context with either a prosocial or group-focus. We designed this manipulation to explore how participants would prioritize moral goals (welfare or fairness) in an overtly competitive context which is common place when individuals have to allocate resources between social groups. However, it is possible that children's ingroup bias shown here occurs because of the initial competitive arts contest and the competitive ingroup norm. Therefore, future work should examine a situation in which the initial level of competition is removed, and participants allocate resources only in a prosocial or group-focused goal context under the condition of either an ingroup competitive or cooperative norm. This would serve to further clarify the developmental differences found in this study.

In summary, this study uniquely demonstrated developmental and contextual differences in how the prioritization of moral goals during intergroup resource allocation is

influenced by ingroup norms of competition and cooperation. This study showed that for children specifically ingroup norms hold a powerful influence when deciding to allocate resources in favor of their group in a prosocial goal context. They allocated significantly more resources to their ingroup in order to achieve a prosocial goal when their ingroup norm was competitive. Children prioritized the moral goal of welfare over that of fairness when their ingroup favored competition. In contrast, adolescents and adults prioritized fairness in all contexts since they didn't advantage their group even when the goal context was prosocial and welfare as a moral concern was salient. It was also found that, with age, individuals begin to reason about their equal intergroup allocations using more nuanced notions of fair competition. These results provide a rich avenue for future research, which should examine how children prioritize different and often conflicting moral, social or personal goals when deciding how to allocate resources between social groups.

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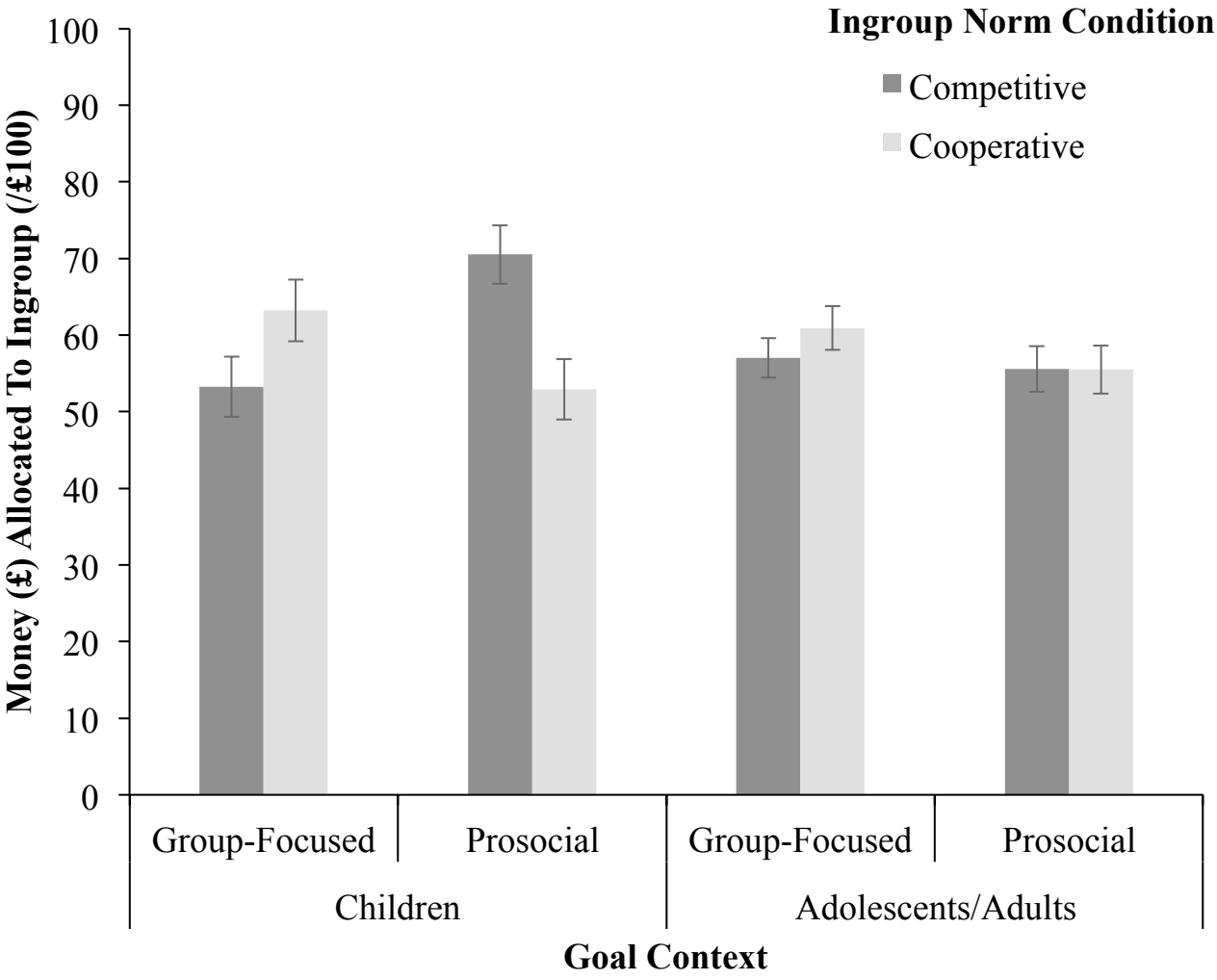

Figure 1. Money allocated to ingroup as a function of age, ingroup norm and goal context with standard error bars