Partner in Crime:

Beneficial Cooperation Overcomes Children's Aversion to Antisocial Others

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Research highlights:

- 4 to 5-year-old children develop a strong obligation to collaborate with partners who help them acquire resources.
- Children like and choose the antisocial partner as a future partner, but only in a setting in which they benefit from the cooperation.
- A beneficial setting without cooperation is not enough to overcome children's aversion to antisocial others.
- Beneficial cooperation does not influence children's moral judgments.

Abstract

Young children display strong aversion toward antisocial individuals, but also feel responsible for joint activities and express a strong sense of group loyalty. This paper aims to understand how beneficial cooperation with an antisocial partner shapes preschoolers' attitudes, preferences and moral judgments concerning antisocial individuals. We argue that although young children display a strong aversion to antisocial characters, children may overcome this aversion when they stand to personally benefit. In Study 1a (N = 62), beneficial cooperation with an antisocial partner resulted in the children's later preference for the antisocial partner over the neutral partner. Study 1b (N = 91) replicated this effect with discrete measurement of liking (resource distribution) and showed that children rewarded more and punished less the antisocial partner in the beneficial cooperation setting. In Study 2, (N = 58), children's aversion to an antisocial ingroup member decreased when the cooperation benefited other ingroup members. Finally, in Study 3 (N = 62), when children passively observed the antisocial individual, personal benefits from the antisocial behavior did not change their negative attitude toward the antisocial individual. Overall, beneficial cooperation with the antisocial partner increased the children's liking and preference for the antisocial partner, but did not affect the children's moral judgments. Presented evidence suggests that by the age of 4, children develop a strong obligation to collaborate with partners who help them to acquire resources – even when these partners harm third parties, which children recognize as immoral.

Keywords: moral development, obligation, cooperation, relationship regulation, attitude

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Cooperating in social groups requires skills to evaluate whether individuals are good prospects for relationship partners. During the evaluation process, people weigh information such as whether the partner has harmed third parties in the past (Everett, Pizarro, & Crockett, 2016; Vaish, Carpenter, & Tomasello, 2010), whether cooperation with the partner can bring personal benefits (DeScioli, Cho, Bokemper, & Delton, 2020), and whether we have specific obligations toward the partner entailed by social relationships (McManus, Kleiman-Weiner, & Young, 2020; Rai & Fiske, 2011). This suggests that judgments regarding potential relationship partners are complex and sensitive to the context of prospective cooperation. In this paper, we aim to investigate the developmental underpinnings of beneficial cooperation by examining how the context of cooperation and personal interests shape young children's social and moral judgments of partners who harm others.

According to the theory of morality as a form of cooperation (Tomasello & Vaish, 2013, Vaish & Tomasello, 2014), morality facilitates cooperation among humans by promoting fairness and sympathy to others on the one hand, and enforcement of social norms on the other. Young children are intrinsically motivated to participate in joint activities (Warneken, Gräfenhain, & Tomasello, 2006; Warneken & Tomasello 2007), feel responsible for cooperation (Hamann, Warneken, & Tomasello, 2011), and prefer to cooperate on a goal-directed task rather than achieve the goal on their own (Rekers, Haun, & Tomasello, 2011). Nevertheless, we know surprisingly little on whether or how, in the context of cooperation, children weigh information about the past actions of a cooperating partner. In this paper, we propose that when cooperating partners inflict harm on others, children may use social and moral judgments to regulate relationships with partners and third parties.

On the one hand, we could expect that aversion to antisocial others is strong enough to discourage children from cooperating with them. Research has shown that infants display a strong aversion to antisocial others (Hamlin, Wynn, & Bloom, 2007; Hamlin & Wynn, 2011), avoid them and expect others to do the same (Kuhlmeier, Wynn, & Bloom, 2003). Young children also avoid helping individuals who intended or caused harm to others (Vaish, et al., 2010). Moreover, children display a negative attitude and judge wrongdoings negatively, even if the moral transgression concerns a member of their own group (Hetherington, Hendrickson, & Koenig, 2014; Wilks & Nielsen, 2018). They would also sacrifice their resources not only to punish antisocial characters (Jordan, McAuliffe, & Warneken, 2014; McAuliffe, Jordan, & Warneken, 2015; Salali, Juda, & Henrich, 2014; Yang, Choi, Misch, Yang, & Dunham, 2018; Yudkin, Van Bavel, & Rhodes, 2020), but also to witness punishing of an antisocial character (Mendes, Steinbeis, Bueno-Guerra, Call, & Singer, 2018).

On the other hand, research on group loyalty suggests that children might feel obligated to maintain a relationship with the antisocial partner. Evidence suggests that 5-year-olds have a strong sense of group loyalty (Misch, Over, & Carpenter, 2014), reveal the secrets of ingroups less frequently than those of outgroups (Misch, Over, & Carpenter, 2016), and more reluctantly expose a severe transgression of the ingroup than of the outgroup (Misch, Over, & Carpenter, 2018). Reluctance to abandon the cooperating partner should be especially likely when children achieve personal goals due to cooperation with the antisocial partner, perhaps feeling that it is in their interest to sustain the beneficial cooperation.

Children are highly egocentric and, before the age of 7, put their material gain over equal divisions (Sheskin, Bloom, & Wynn, 2014; Smith, Blake & Harris, 2013). For instance, young children prefer the large offer (16 stickers) from an antisocial other over a small offer (1 sticker) from a do-gooder (Tasimi & Wynn, 2016) and are attracted to wealthy individuals (Horwitz, Shutts, & Olson, 2014; Li, Spitzer, & Olson, 2013; Myslinska-Szarek & Baryla,

2018). Moreover, research has shown that an individual's counter-normative behavior is judged as immoral when participants are impartial bystanders. However, this judgment becomes more lenient when participants profit from the observed behavior (Bocian & Wojciszke, 2014; Bocian, Baryla, & Wojciszke, 2016). A different line of inquiry showed that moral traits increase liking when morality advantages our goals, but when immorality is goal-conducive, the preference for moral traits is eliminated or reduced (Melnikoff & Bailey, 2018).

Overall, this evidence suggests that even though children display a strong aversion toward antisocial others, this aversion might be overcome when cooperation is potentially beneficial. In this paper, we argue that cooperation with the antisocial partner who helps children achieve personal goals (e.g., material profits) generates a social relationship dilemma. On the one hand, cooperation forms a relationship with the partner, which children might want to regulate for prospective beneficial side-taking. On the other hand, children must solve the problem of third-party condemnation of the partner's wrongdoings. In this paper, we propose that children might solve this issue with the strategic use of social and moral judgments.

One feature of moral decision making is the use of morality in a strategic way to benefit oneself or one's group, and two major theories of moral psychology account for this strategic perspective (see Bocian, Baryla & Wojciszke, 2020). Relationship regulation theory (RRT; Rai & Fiske, 2011; Rai, 2020) argues that moral judgments emerge as an obligation defined by a relationship in which they occur (e.g., group unity). In other words, RRT acknowledges that people need competing moral motives, which allow them to regulate and sustain social relations. Using moral motives dependent on the current context of relationship, complex relational problems may be solved with moral judgments (e.g., conflict of interests). In a similar vein, dynamic coordination theory (DCT; DeScioli & Kurzban, 2013) postulates

that people use moral condemnation strategically to decide which side of the conflict they should choose. Hence, people must coordinate their use of loyalty versus impartiality to choose sides in the conflict (DeScioli & Kurzban, 2013).

Despite strong theoretical rationale for strategic, moral decision-making, we have surprisingly little empirical evidence supporting these assumptions, so the origin of such judgments is not well understood. In this paper, we aimed to fill this void by investigating whether a beneficial cooperation context would impact young children's social and moral judgments regarding the antisocial others. To the best of our knowledge, strategic, moral decision-making in the context of cooperation has never been tested on adults and children (but see Fehr & Fischbacher, 2004 and McAuliffe, Jordan, & Warneken, 2011 for third-party punishment among adults and young children). If morality serves the adaptive function which enables human strategic moral decision making to sustain and coordinate social relationships, empirical evidence found in the socio-moral judgments of young children will confirm the complexity of moral cognition in early developmental stages as proposed by RRT (Rai & Fiske, 2011) and DCT (DeScioli & Kurzban, 2013).

In summary, the theory of morality as cooperation and research on joint commitment suggests that children will judge the immoral act more leniently if the perpetrator is their cooperation partner. However, cooperation itself seems to be insufficient to overcome children's aversion to the antisocial other. Although, if we consider the high egocentrism of preschool children, we may expect that immoral behavior, which brings profit for a child, of the cooperation partner, may change a child's attitude toward the partner from negative to positive. This hypothesis is consistent with the relationship regulation theory (RRT) because children's gain from the immoral behavior of the cooperation partner may motivate them to maintain unity in a beneficial relationship. Hence, children may positively judge the antisocial partner despite the partner's immoral behavior. Moreover, the dynamic coordination theory

(DCT) suggests that children may build their alliance with the cooperation partner strategically. Especially, children may judge the antisocial partner positively if cooperation is profitable for them. However, when cooperation is not beneficial, children may condemn the actions of the cooperation partner to send an appropriate signal to potential third parties.

Investigation of strategic, moral decision-making in the context of beneficial cooperation on young children is important for at least three reasons. First, it will help understand how early in social and moral development strategic, moral decision-making takes place. Thus, knowing the origin of strategic, moral decision-making, we may further investigate why, at this early stage of life humans can make such complex social and moral judgments. We may assume that ability to make accurate and strategic decisions in the context of relationships that promised prospective benefits where crucial for the survival of our species. Therefore, from the early stages of our life, we can navigate ourselves in complex relationships because they help us achieve important, personal goals.

Second, testing strategic, moral decision-making in the context of beneficial cooperation will expand the current knowledge about how preschoolers form their social relations with peers. This new knowledge is important because children at this age start shaping relations with their peers on their own, without the intervention of their parents and other adults. Finally, as strategic, moral decision-making in the context of beneficial cooperation was never tested before, the present research will provide the first evidence that other scholars may use for future comparisons of analogous studies conducted on older children, youth and adults. In that way, gathered evidence would help us understand whether social and moral judgments made in the context of beneficial cooperation change over the human lifespan.

Overview of the current studies

Based on previous studies and the relational, coordination and cooperation theories of moral psychology, we hypothesized that cooperation that is personally beneficial for a child, would result in: (1) increase of positive attitude toward the antisocial partner, (2) more frequent choice of the antisocial partner over the neutral character as a future partner, (3) and judgments of the partner's wrongdoings as good, (4) but only in the context of cooperation, (5) which rewards a child.

We tested our predictions in four studies with children aged 4 to 5 recruited from kindergartens in a medium-sized city. We chose this age range for three reasons. First, 3-year-old (but not younger) children start to understand the importance of joint commitment and the meaning of working for a common goal in a cooperative setting (Gräfenhain, Behne, Carpenter, & Tomasello, 2009; Gräfenhain, Carpenter, & Tomasello, 2013; Hamann, et al., 2012). Second, 3,5-year-olds show their preferences and prosocial behavior to cooperation partners only in the context of collaboration, while 5-year-olds extend their attitudes and prefer the cooperation partner even when the cooperation is finished (Plötner, Over, Carpenter, & Tomasello, 2015). Finally, from the age of three, children begin to understand and enforce social norms, becoming a fully developed skill between 4 and 5 years of age (Tomasello, 2019). Hence, 4-year-olds may be the youngest that we could observe, and investigate complex social and moral judgments in the context of beneficial cooperation.

In Study 1a, the children cooperated with a partner who harmed a third party to complete a task. We tested how rewarding versus non-rewarding cooperation would affect the children's attitudes, moral judgments, and preferences for the antisocial partner. In Study 1b, we added a resource allocation task to test how rewarding cooperation would impact the children's decision regarding the distribution of resources between the victim and the antisocial partner. In Study 2, we asked the children to work in a group of three where one of

the group members harmed another individual to help the group complete a task in order to investigate whether group interest rather than individual interest would influence the children's evaluations. Finally, in Study 3, the children did not cooperate with the antisocial partner, but either profited or not from the partner's antisocial actions. We tested whether personal benefits without cooperation would impact the children's attitudes, moral judgments, and preferences regarding the antisocial other.

In this article, all measures, manipulations, and data exclusions are reported. Parents' permissions for children's participation in child development studies were collected before the beginning of the study. The procedure for all studies has been positively evaluated by the relevant Research Ethics Committee. Although we did not use power analysis for sample size estimation, a sensitivity power analysis indicated that, given an alpha of .05 and power of .80, the recruited sample in Study 1a, Study 1b and Study 3 would detect both the medium effect size of Cohen's w = .36 in the simple proportion differences tests and the medium effect size of Cohen's d = 0.64 in the simple independent means differences tests. For Study 2, the recruited sample would allow to detect a medium effect size of Cohen's w = .37 in simple proportion differences tests and medium-large effect size of Cohen's d = 0.66 in simple independent means differences tests. Data supporting the findings of the presented studies is openly available at the following: https://osf.io/wj6rm/?view_only=3a1921e65c0a4bbf85ff04996a6d5f82.

Study 1a

In study 1a, we investigated whether rewarding versus non-rewarding cooperation would impact the children's attitudes, moral judgments, and preferences regarding the antisocial partner. Children are highly cooperative beings (Rekers, Haun, & Tomasello, 2011), value group loyalty over social norms (Misch et al., 2018), and feel obliged to finish joint commitment started with a partner (Hamann et al., 2011). Therefore, the children worked

together with the partner puppet that destroyed the target other puppet's construction in order to complete the given task. Additionally, we either did or did not reward the children for the successful completion of the task, and afterward, we probed their attitudes, moral judgments, and preferences. We assumed that the group-work nature of the task and a joint goal combined with personal gain would shape the children's responses. Specifically, we predicted that children would like and prefer the co-working partner puppet to a greater extent when their cooperative work resulted in a reward.

Method

Participants. The participants were 4 and 5-year-old children (N = 62, 32 girls, 30 boys) between the ages of 47 and 65 months (M = 57.53 months, SD = 5.03 months). Four children were tested, but excluded from data analysis due to their inability to understand the experimental procedure (3 children), or their distraction and lack of response to the experimenter's questions (1 child).

Procedure and design. Children were tested individually in a separate room in their kindergartens and randomly assigned to one of two conditions: beneficial condition or control condition. First, we measured the children's attitude toward the puppets (the future partner and the future target) using a 5-point scale (5 different size stars, see Figure 1 and Figure 3 in the Supplement for the framework of the experimental procedure). The children's task was to build a tower in cooperation with the partner puppet following a pattern presented by the experimenter. The target puppet was building its tower independently nearby, while a neutral puppet was a bystander.[1] In the beneficial condition, we told children that those who

[1] For the partner/bystander puppets, we used two identical lion puppets with one differentiating feature - the color of the bowtie (green or red). During the experiment, one lion puppet was the antisocial partner, and the other was the bystander. We used the bystander puppet to probe children's preferences for the antisocial actor

successfully finished the tower in line with the presented pattern would receive a reward of five stickers. In the control condition, there was no information about a reward for completing the task. The child and the partner puppet were building side by side with the target puppet, but they did not compete. However, the task was designed so that, due to the number of blocks given, only one tower could be built.

During the task, the partner puppet steals one block from the target's construction to finish his own tower, resulting in the collapse of the target puppet's tower. Only the child and the partner puppet were rewarded for finishing their tower successfully. In the control group there was no-reward for successfully finishing the task. Afterward, the first researcher left the room and a second researcher, blind to the hypothesis and research condition, asked the children what had happened during the show and then interviewed children using dependent variables in the following order: (1) Liking: "How much do you like the lion puppet in the red/green tie right now? Can you show which of the five stars you picked for the lion puppet?"[2], (2) Moral judgment: "Do you think the lion in the green/red tie acted in a good or bad way?", (3) Choice: "If we played a different game, which puppet would you like to be on a team with, the one with the red or green bowtie?".[3]

versus a similar-looking neutral actor. For each experimental condition, we counterbalanced which lion puppet (green or red bowtie) was the actor or bystander.

[2] We also asked how much children liked the target puppet (see Supplement for more information).

[3] Children decided whether they wanted to cooperate with the actor puppet (antisocial partner) or the neutral puppet (bystander).

Results

Liking[4]. To test the hypothesis that beneficial cooperation would overcome children's aversion to the antisocial other, we subjected the liking measurement to a mixed-design ANOVA in a 2 (Liking measure: Before vs. After) × 2 (Condition: Control vs. Beneficial) with the first factor as a within-subjects and the second as a between-subjects. The main effect of the condition revealed that the partner puppet was liked more in the beneficial condition than in the control condition, (M = 4.71, SD = 1.14 vs. M = 4.11, SD = 1.15), $F(1, 60)$ = 18.67, $p < .001$, $\eta_p^2 = .24$. We also found the interaction between the condition and liking, $F(1, 60) = 22.59$, $p < .001$, $\eta_p^2 = .27$. Simple effects analysis revealed that there was no effect of condition on children's liking for the antisocial partner before the wrongdoing (d_s = -0.24), but this difference emerged after the wrongdoing (d_s = 1.15) due to the weaker decrease of liking scores among the children in the beneficial condition (d_{av} = -0.91) than in the control condition (d_{av} = -3.09, see Table 1).

[4] As Tables 1 to 4 show, in all four studies, the initial liking for the actor puppet demonstrates a ceiling effect, impairing the interpretation of the variance analysis results. Therefore, in the tables, we show all analytical comparisons. We used standardized mean differences between two groups of independent observations for the sample (d_s) as effect size estimators for between-participants comparisons (Cohen, 1988). We also used mean differences standardized by averaged standard deviations of both repeated measures (d_{av}) as effect sizes for comparisons of correlated samples (Cumming, 2012). Confidence intervals (CIs) around *d*s were computed on the basis of noncentralized distributions (Cumming & Finch, 2005).

Table 1

Liking toward the actor puppet before and after the wrongdoing as a function of the beneficial cooperation (Study 1a)

	Time 1		Time 2				95% CI		Cohen's
Condition	*M*	*SD*	*M*	*SD*	*t*(30)	*p*	*LL*	*UL*	*D*
Beneficial	4.97	0.18	4.45	0.96	-3.10	.004	-1.50	-0.31	0.70
Control	5.00	0.00	3.23	1.15	-8.62	< .001	-3.83	-2.36	2.19

Note. *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit

Moral judgment. To test whether beneficial cooperation impacted the children's moral judgment regarding the antisocial partner we ran a chi-square test with the moral judgment as the dependent variable. In contrast to our predictions, the majority of children (48 of 56) judged the partner puppet's actions as wrong with no difference between the beneficial and the control conditions, $\chi^2(1, N = 56) = 2.37$, $p = .306$.

Choice. To test whether beneficial cooperation impacted the children's decisions about who they choose for a future task, we ran a second chi-square test with the choice as the dependent variable. As shown in Figure 1, there was a significant difference in the children's choice of the partner puppet between the beneficial and control conditions, $\chi^2(1, N = 62) = 31.52$, $p < .001$, $w = .71$. In the control condition, 6 children chose the antisocial partner, however, in the personal benefit condition, this number rose to 28.

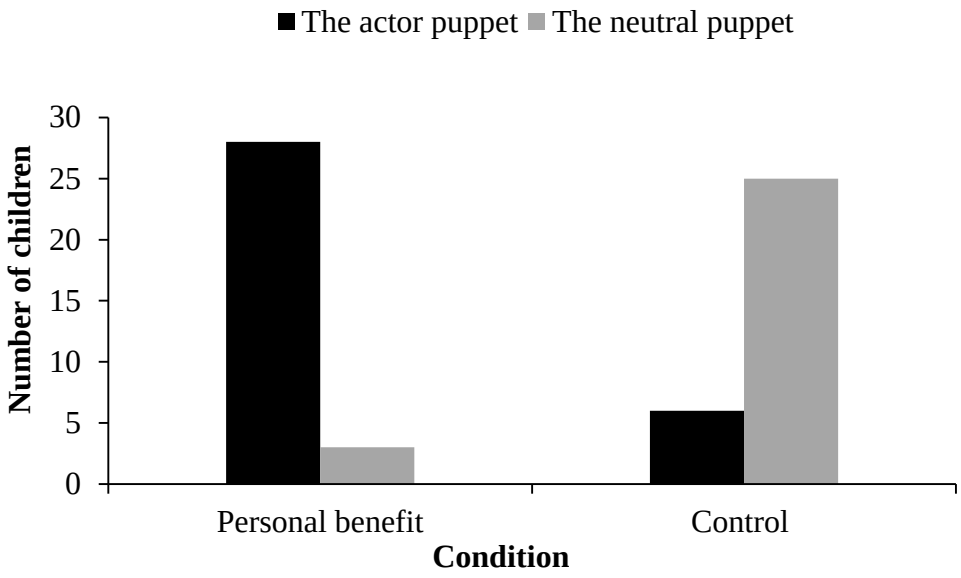

Figure 1. Children's choice of the wrongdoer in the personal benefit and the control condition (Study 1a).

Discussion

The Study 1a provided initial support for our hypothesis that beneficial cooperation would affect children's attitudes, moral judgments and preferences. In line with our predictions, children liked and chose the antisocial partner more frequently as a future partner, but only when they benefited from the collaboration. Contrary to our assumptions, personal reward had no impact on the children's moral judgment, which suggests that even though 4 and 5-year-old children recognize the behavior as immoral, the collaborative character of the task has a crucial influence on the children's attitudes and preferences concerning antisocial others. This discrepancy between attitude and moral judgments suggests that children's moral decision-making is strategic. On the one hand, children wish to sustain the beneficial cooperation with the antisocial partner (I like you), whereas, they condemn a partner's behavior (but your actions are wrong) sending a signal to potential third parties (e.g., experimenter). Therefore, Study 1 results align with the assumptions of RRT (Rai & Fiske, 2011; Rai, 2020) and DCT (DeScioli & Kurzban, 2013) theories of morality.

These results are also in line with evidence that children are ultra-cooperative (Tomasello et al., 2012) and aim to achieve common goals (Tomasello & Vaish, 2013). However, whether children's aversion to antisocial others would be overcome depends not only on the cooperation with group members but also on their personal gains. That is because children are highly egocentric and strongly focused on their benefits. Preschoolers aged 4 to 6, if their interest is at stake, prefer higher profit over fair resource distribution (Benenson, Pascoe, & Radmore, 2007; Blake, & McAuliffe, 2011; Smith et al., 2013). Also, 4-year-olds rarely transfer more than half their resources, even when the recipient is needy (sad or without toys; Malti et al., 2016).

Study 1b

In Study 1b, we sought to replicate the results of Study 1a with an additional measure of children's preferences: resource distribution. Distribution of resources is frequently used as an indirect measurement of liking, and children perceive it as a form of rewarding (Vogelsang & Tomasello, 2016; Plötner, et al., 2015). Taking away resources, in contrast, is usually interpreted by children as a form of punishment (Hamlin, Wynn, Bloom & Mahajan, 2011; Jordan, et al., 2014; Yang, et al., 2018). Therefore, children either distributed additional reward (stickers) between their antisocial partner and the target, or redistributed additional reward by deciding how much of the reward should be taken from the antisocial partner and passed to the target. We assumed that children would allocate more resources to the antisocial partner than to the target when engaged in personally rewarding cooperation with the former. We also predicted that children would be less willing to punish the antisocial partner when the antisocial act was beneficial for themselves. Therefore, we predicted that children would pass fewer stickers from the antisocial partner to the target after beneficial cooperation with the antisocial partner. Because in both reward conditions (distribution and redistribution) children

would benefit from the cooperation, we assumed that these two conditions would not differ from each other.

Method

Participants. The participants were 4 and 5-year-old children (N = 91, 49 girls, 42 boys) between the ages of 43 and 65 months (M = 53.77 months, SD = 5.03 months.

Procedure and design. The design and procedure were similar to Study 1a with one extension. We introduced a measure of resource distribution. To this end, after the children completed the task and either did (beneficial condition) or did not (control condition) receive five stickers, a second experimenter asked them to decide how to distribute five additional stickers between the partner and target puppets. This design yielded three experimental conditions. In the first condition (benefit + distribution), the children distributed the additional stickers between the partner and target puppets. In the second condition (no benefit + distribution), the children distributed the additional stickers in the same way as in the first condition, but their interest was not involved. In the third condition (benefit + redistribution), the partner puppet was given five stickers and the children were asked how many stickers they wanted to take from the partner puppet and give to the target puppet. In each condition, the children were told that they could distribute/redistribute any number of stickers and did not have to use them all. As in Study 1a, after cooperating with the partner puppet, the children answered all questions measuring the dependent variables (i.e., liking, distribution decision, moral judgment, and choice).

Results

Liking. We subjected liking measurement to a mixed-design ANOVA in a 2 (Liking measure: Before vs. After) × 2 (Condition: Control vs. Beneficial) with the first factor as a within-subjects and the second as between-subjects. Corroborating the results of Study 1a the main effect of the conditions revealed that the antisocial partner was liked more in both

beneficial conditions than in the control condition, (M = 4.83, SD = 2.19 vs. M = 4.15, SD = 1.2), $F(1, 88) = 16.21$, $p < .001$, $\eta_p^2 = .27$. Moreover, we found an interaction between condition and liking, $F(1, 88) = 70.00$, $p < .001$, $\eta_p^2 = .61$. A paired-samples t-test analysis showed that in both the first and the second beneficial conditions the children liked the antisocial partner to the same extent before and after the antisocial behavior (see Table 2), while in the control condition children liked the antisocial partner before more than after the antisocial behavior (d_{av} = -2.65). A planned contrast showed a fair fit between the data and the expected pattern confirming a strong effect of beneficial cooperation on children's liking for the antisocial partner after the wrongdoing ($t_{contrast} = 8.94$, $p < .001$, $d_{contrast} = 1.96$).

Table 2

Liking toward the actor puppet before and after the wrongdoing as a function of the beneficial cooperation (Study 1b)

	Time 1		Time 2				95% CI		Cohen's
Condition	*M*	*SD*	*M*	*SD*	*t*(29)	*P*	*LL*	*UL*	*d*
Reward/distribution	4.83	0.75	4.64	0.89	1.99	.056	-0.01	0.41	0.24
Reward/redistribution	4.90	0.30	4.93	0.25	-1.00	.326	-0.10	0.03	0.10
Control	4.94	0.36	3.35	0.84	10.90	< .001	1.29	1.88	2.37

Note. *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit

Resource distribution. Revealed in a 3 (Condition) x 2 (Puppet) analysis of variance, children allocated more stickers to the antisocial partner than to the target puppet (M = 2.66, SD = 1.02 vs. M = 2.31, SD = 0.96), $F(1, 88) = 4.18$, $p = .044$, $\eta_p^2 = .06$). Pictured in Figure 2, there was also a significant interaction between research conditions and which puppet the children rewarded to a higher degree, $F(2, 88) = 16.49$, $p < .001$, $\eta_p^2 = .27$. In the control/distribution condition children transferred more stickers to the target than to the

partner puppet (M = 2.97, SD = .86 vs. M = 1.94, SD = .93, $t(30) = 3.34$, $p = .002$, d = 0.58, 95% CI [0.40, 1.64]. However, in the beneficial/distribution condition, the children gave more stickers to the partner puppet than to the target puppet (M = 2.87, SD = .73 vs. M = 2.13, SD = .73), $t(29) = 2.75$, $p = .010$, d = 0.51, 95% CI [0.19, 1.28]. In the beneficial/redistribution condition children took less than two stickers of five from the partner puppet (M_{left} = 3.20, SD = .96) and donated them to the target ($M_{received}$ = 1.80, SD = .96, $t(29) = 3.99$, $p < .001$, d = 0.98, 95% CI [0.69, 2.12]).

Moral judgment. Again, most children (83 of 86) judged the partner puppet's action as wrong, demonstrating no differences between both the personal benefit and control conditions, $\chi^2(1, N = 86) = .003$, $p = .998$.

Choice. In both beneficial conditions (Figure 2), children chose the partner puppet more frequently than in the control condition, $\chi^2(1, N = 90) = 40.31$, $p < .001$, $w = .67$. In the control condition, only 3 of 31 children wanted to cooperate with the antisocial partner. In the first and second beneficial conditions, this number reached 24 and 23 respectively.

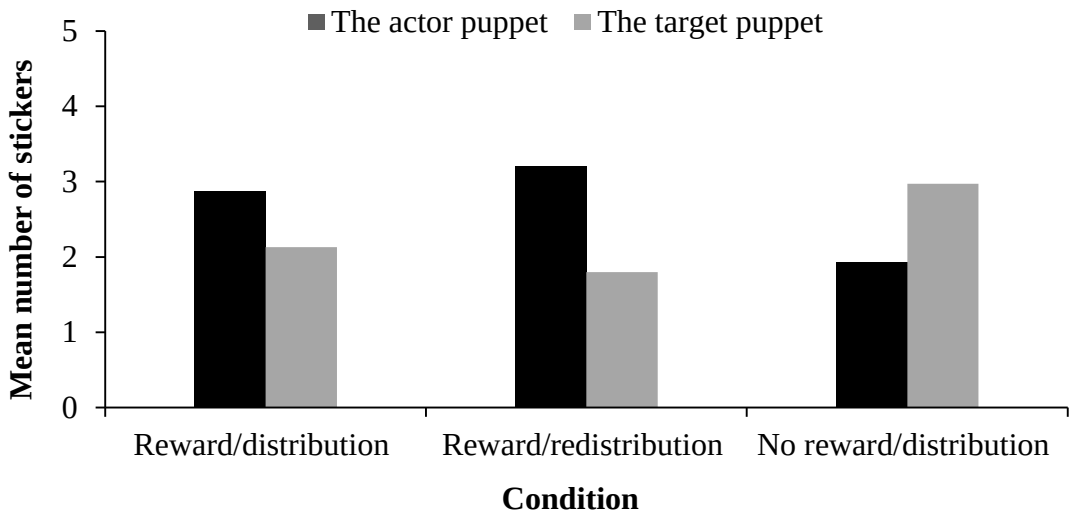

Figure 2. Children's distribution decisions (Study 1b) between the wrongdoer (the actor puppet) and the victim (the target puppet).

Discussion

Study 1b replicated the results of Study 1a, providing more evidence that rewarding cooperation with antisocial others shapes children's preferences and attitudes toward them. Corroborating the results of Study 1a, the antisocial partner whose actions benefited the children was liked more and chosen more frequently as a future team member. Moreover, Study 1b confirmed that beneficial cooperation does not influence children's moral judgments. Similar to Study 1a, the majority of the children judged the behavior of the partner puppet as wrong. More importantly, whether or not the harming act of the partner puppet benefited the children had a profound influence on their decision for resource distribution.

In the control condition, children allocated more stickers to the target puppet, which is consistent with developmental research on indirect reciprocity of moral acts and third-party punishment. Children aged 4 to 5 gave fewer resources to a puppet which behaved antisocially toward third parties (Kenward & Dahl, 2011; Olson & Spelke, 2008). Moreover, children between 3 and 6 enact costly punishment on bad actors, with older children inflicting severer punishments (Yudkin et al., 2020) and sacrifice their resources to witness the punishment of an antisocial other (Mendes et al., 2018). Crucially, as demonstrated in the two beneficial conditions, children's aversion to antisocial others and their willingness to enact punishment disappeared when the wrongdoing was beneficial for them.

Study 1b showed that children gave more stickers to the antisocial partner than the target puppet when they personally gained from the antisocial behavior of the partner puppet. Additionally, children were less willing to take stickers from the antisocial partner and donate them to the target puppet. This evidence supports our assumption that beneficial cooperation has a stronger influence on children's preference and attitude than the violation of moral norms committed by the antisocial collaborator. Therefore, the present results again confirm

the assumptions of strategic, moral-decision making suggested by the RRT (Rai & Fiske, 2011, Rai, 2020) and DCT (DeScioli & Kurzban, 2013).

Study 2

So far, we have found evidence that rewarding cooperation shapes children's attitudes and preferences related to antisocial others. We argue that the driving force behind this effect is cooperation which benefits the child. If children's social and moral judgments depend on group commitment and help them sustain prospective relationships with cooperation partners, it seems important to test whether beneficial cooperation extends to the context where children are not directly rewarded. For example, children might use social and moral judgments in the same strategic way when cooperation benefits a fellow group member instead of the child.

This question also seems relevant, because research has shown strong ingroup bias in children's attitudes and moral judgments. Preschoolers not only prefer members of their group rather than members of other groups (Aboud, 2003; Dunham, Baron, & Carey, 2011; Dunham & Emory, 2014) but also form a group-minded orientation from the age of 3 and equally share resources acquired during cooperation activities (Hamann, Warneken, Greenberg, & Tomasello, 2011). Nonetheless, children actively protest when ingroup members violate moral norms (Schmidt, Rakoczy, & Tomasello, 2012), do not want to share resources with immoral ingroup members (Hetherington, et al., 2014), and like them less after having behaved antisocially (Wilks, Kirby, & Nielsen, 2018). Therefore, in Study 2, we changed the recipient of the reward from the participating child to a member of the child's group. Additionally, we used standard manipulation of group identity to reinforce the children's feelings of group commitment in order to examine whether cooperation which harms a third party, but rewards another ingroup member influences children's attitudes and preferences concerning the antisocial group member.

We assumed that the wrongdoing benefiting the children's group would mitigate their aversion to the ingroup antisocial other. Specifically, we expected that children would like and choose the ingroup member more than other actors when their harmful actions benefited the children's group.

Method

Participants. The participants were 4- and 5-year-olds (N = 58, 29 girls, 29 boys) between the ages of 49 and 66 months (M = 57.90 months, SD = 4.05 months).

Procedure and design. Again, the children built a tower in line with a pattern provided by the experimenter. Before the task, we told the children that they would work in a team with a bear and a giraffe puppet. To reinforce that the child was on one team with the bear, and giraffe, each had the same color ribbons and stickers. Contrastingly, the target puppet (a lion) had a different ribbon and sticker. Further, to concept-check if the children understood with whom they would work, each child had to indicate who their ingroup members were, and which puppet was in the other group. If the child indicated incorrectly, the experimenter repeated the information. The child's task was to, again, build the tower, but this time together with ingroup members. Near the children's team, the lion built its own tower.

Prior to building, we informed them that those who build the tower (either the child's team or the lion puppet) correctly would receive a five-sticker reward. We also informed the children, that because we had only one set of stickers, we would flip a coin to decide who would receive the reward. In the control condition, this information was omitted. Once again, the antisocial ingroup member, in order to successfully complete the task, took one block from the target puppet's (the outgroup member) tower, destroying the construction. After completion, a second experimenter announced the child's group had won. She then tossed a coin and revealed that the giraffe puppet (the third ingroup member) would receive extra stickers. The coin-flip was rigged to always reward the third ingroup member (not the

antisocial ingroup member or child). The remaining dependent variables were identical to those of Study 1a. However, in the choice task, the children decided who they would work with in the future between the antisocial ingroup member, target puppet, or third ingroup member.

Results

Liking. We subjected liking measurement to a mixed-design ANOVA in a 2 (Liking measure: Before vs. After) × 2 (Condition: Control vs. Beneficial) design with the first factor as a within-subjects and the second as between-subjects. The main effect of the condition revealed that the antisocial ingroup member was liked more in the group beneficial than the control condition, $F(1, 56) = 31.07$, $p < .001$, $\eta_p^2 = .36$. Additionally, corroborating the results of Study 1a and Study 1b we found the interaction between the condition and the time of liking measurement, $F(1, 56) = 33.11$, $p < .001$, $\eta_p^2 = .37$. There was no effect of condition on the children's liking for the antisocial ingroup member in the measurement before the antisocial behavior ($d_s = 0.20$), but this difference emerged in the measurement after the antisocial behavior ($d_s = 2.08$) due to the weak increase of liking scores among the children in the group beneficial condition ($d_{av} = 0.42$) and strong decrease of liking in the control condition ($d_{av} = -1.29$; See Table 3)[5].

[5] We also measured and analyzed liking toward the other two puppets. See Supplementary materials.

Table 3

Liking toward the actor puppet before and after the wrongdoing as a function of the beneficial cooperation (Study 2)

	Time 1		Time 2				95% CI		Cohen's
Condition	*M*	*SD*	*M*	*SD*	*t*(28)	*P*	*LL*	*UL*	*D*
Group benefit	4.34	0.72	4.66	0.81	-1.48	.153	-0.75	0.12	-0.41
Control	4.17	0.97	2.86	0.92	7.03	< .001	0.93	1.37	1.38

Note.*CI* = confidence interval; *LL* = lower limit; *UL* = upper limit

Moral judgment. Most children (46 of 50) had no doubt that the antisocial ingroup member's actions were wrong independently of the condition, χ^2 (1, N = 50) = 1.37, p = .504.

Choice. Children chose the antisocial ingroup member more frequently than other puppets, but only in the condition where wrongdoing benefited the member of the child's team, χ^2 (1, N = 58) = 22.60, p < .001, w = .62 (see Figure 3). In the control condition only 4 children picked the antisocial ingroup member for future play. In the group beneficial condition this number rose to 22.

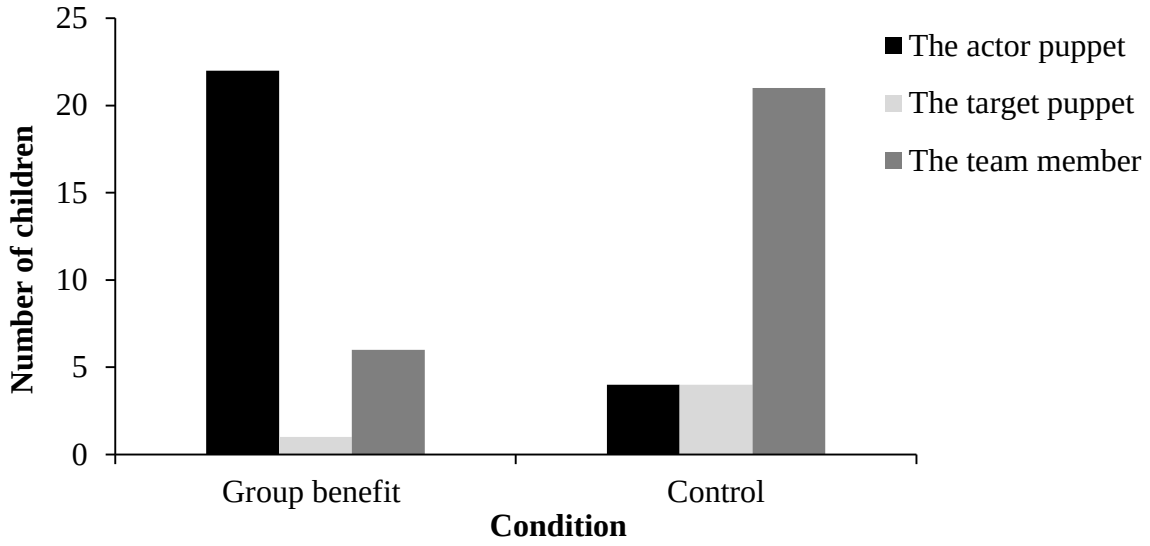

Figure 3. Children's choice of the partner for future cooperation in the group rewarding condition and the control condition (Study 2).

Discussion

Study 2 extended the previous results by demonstrating that the effect of profitable cooperation influences children's judgments of antisocial others even when their actions are not beneficial for the child personally. In line with our hypotheses, when an ingroup member benefited from the antisocial act of the antisocial ingroup member the children liked more and preferred the antisocial ingroup member as a partner in future cooperation. In contrast, when the ingroup member's antisocial behavior did not bring profit to the child's group, children disliked the antisocial ingroup member and chose a neutral ingroup member over other puppets for future play more often. Evidence from the control condition corroborates studies, which showed that children display an aversion to antisocial ingroup members (Schmidt et al., 2012; Hetherington et al., 2014; Wilks et al., 2018). However, as in Studies 1a and 1b, we found that when cooperation rewarded a child's group (one of the child's group members received a benefit), the children's aversion to the antisocial ingroup member was attenuated.

Study 3

In study 3, we sought to determine whether personal gains without cooperation or group affiliation with the actor puppet (antisocial character) would still impact children's attitudes and preferences toward the antisocial other. We argue that cooperation is an essential factor that drives children's strategic, social and moral decisions. If so, children benefitting from the antisocial act without cooperating with the actor puppet should produce different results than found in Studies 1a, 1b and 2. Therefore, the children were asked to passively observe the actor puppet destroy the work of the target puppet to finish their task. We manipulated whether or not the children and the actor puppet were independently rewarded for finishing the task. Then we measured the children's attitudes, moral judgments and preferences using variables from Study 1a. We assumed that personal gains without cooperation would not be enough to overcome the children's aversion to the antisocial other and would not impact their evaluations.

Method

Participants. The participants were preschoolers aged 4-5 years (N = 62, 33 girls, 29 boys) between the ages of 41 and 66 months (M = 55.53 months, SD = 6.45 months).

Procedure and design. The procedure and design were the same as in Study 1a. However, in the present study, the children were only passive observers of the antisocial behavior of the actor puppet. Therefore, cooperation with the actor puppet was not present, and the children could not identify with the actor puppet as a group member. First, we informed the children that they would see a show with two lions, a bear and a mouse. Then, the children listened to the following story:

Lucy, the mouse, is a small mouse that does not have a house and would like to have one. That is why she asked the lion and the bear to build a little house for her.

In the personal benefit condition, Lucy told the children that whoever successfully built a house for her from wooden blocks would be rewarded with stickers. Then she added that she had many stickers, so she would also award stickers to observing children. In the control condition, Lucy did not mention that she had a reward for the successful builder. The children watched the actor puppet and the target puppet separately build a house. The actor puppet again stole one block from the target puppet's house, destroying its construction. In the end, Lucy occupied the house built by the actor puppet, and in the personal benefit condition, she rewarded both the actor puppet and the observing child with stickers. In the control condition, the rewarding stage was omitted. After the show, the first researcher left the room and a second researcher, blind to the hypothesis and research conditions, asked children the same questions as in Study 1a.

Results

Liking. We subjected liking measurement to a mixed-design ANOVA in a 2 (Liking measure: Before vs. After) × 2 (Condition: Control vs. Beneficial) design with the first factor as a within-subjects and the second as between-subjects. This analysis yielded only a main effect of time of measurement, $F(1, 60) = 89.33$, $p < .001$, $\eta_p^2 = .60$. The actor puppet was liked less after antisocial act, ($M = 3.16$, $SD = 1.09$) in comparison to the initial liking scores, ($M = 4.44$, $SD = 0.74$). More importantly, we did not find the interaction between the condition and the time of liking measurement , $F(1, 60) = 2.42$, $p = .125$, $\eta_p^2 = .04$. As well, there was no effect of personal benefit on children's liking for the antisocial actor both in the initial measurement ($d_s = 0.12$) and in the measurement after the antisocial behavior ($d_s = 0.48$). This was due to the strong decrease of liking scores both among the children in the beneficial condition ($d_{av} = -1,28$) and in the control condition ($d_{av} = -1.54$; see Table 4).

Moral judgment. The analysis of children's moral judgment revealed no differences between the beneficial and the control condition, χ^2 (1, N = 61) = 0.98, p = .321. The majority of children (60 of 61) judged the actor puppet's action as wrong.

Choice. There was no difference in children's choice between the beneficial and the control condition, χ^2 (1, N = 62) = 2.30, p = .130, w = .19 because most children (54 of 61) selected the neutral puppet as a potential member of their group[6].

Discussion

Study 3 results showed that children judged the antisocial behavior as wrong and preferred the neutral puppet over the actor puppet as a future team member, providing additional evidence that cooperation with the antisocial partner is more important than personal gain in overcoming children's aversion to antisocial others.

The present study replicated and extended the results of studies on infants and young children which showed that aversion toward antisocial others could not be easily overcome by personal gains (Tasimi & Wynn, 2016; Tasimi et al., 2017). Additionally, and in contrast to the results found in adults (Bocian & Wojciszke, 2014; Bocian et al., 2016), profiting from the actions of the antisocial actor as a passive spectator did not create bias in the children's attitude, moral judgment, and preferences.

After the severe transgression of the ingroup (vs. outgroup), member 4 and 5-year-olds are less likely to blow the whistle (Misch et al., 2018). Probably because 5-year-olds rate loyal behavior more positively than disloyal behavior (Misch et al., 2014). This evidence suggests that in the context of cooperation, children's judgment and behavior may be guided by group loyalty or group commitment rather than by the norm of fairness. Moreover, according to the interdependence hypothesis, humans are ultra-cooperative (Tomasello, Melis,

[6] Identical to Study 1a, children chose between similar puppets (red or green bowtie), the antisocial partner or neutral bystander

Tennie, Wyman, & Herrmann, 2012) and developmental research shows that by age three, children not only want to collaborate with others to achieve joint goals but also contribute their own efforts to complete the cooperation (Tomasello & Vaish, 2013). Therefore, Study 3 confirms that only collaboration with an antisocial individual to achieve a joint goal combined with personal gains can change children's aversion to the antisocial other.

General Discussion

The present research demonstrated that children's aversion to antisocial others might be reduced or even overcome when children are involved in a rewarding cooperation with those others. In four studies, we found that cooperation with the antisocial individual which is either beneficial for the child or a member of the child's group impacts the children's attitude and preference toward the antisocial partner. In Study 1a, cooperation with the antisocial partner whose behavior benefited the children removed their aversion to antisocial others. In Study 1b, overcoming their aversion to antisocial others, the children rewarded more and punished less the antisocial partner when benefiting from the antisocial act. Study 2 demonstrated that a benefit to an ingroup member is enough to overcome children's aversion to antisocial individual. Finally, Study 3 proved that personal benefit did not overcome the children's aversion to the antisocial individual due to the lack of cooperation between them. Therefore, the present research contributes significantly to the vast body of literature on children's aversion to antisocial others (Hamlin et al., 2007; Hamlin & Wynn, 2011; Kenward & Dahl, 2011; Kuhlmeier et al., 2003; McAuliffe et al., 2015; Mendes et al., 2018; Olson & Spelke, 2008; Schmidt et al., 2012; Tasimi & Wynn, 2016; Tasimi et al., 2017; Vaish et al., 2010; Wilks et al., 2018; Yudkin et al., 2020) by examining young children's social and moral judgments in response to the transgressions of a cooperating partner that are beneficial for a child.

By systematically examining the mechanisms underlying the reduction of aversion to antisocial others we have built on and extended past work in this area. First, while previous research showed that infants and young children's aversion to antisocial others might be overcome by a very large benefit (16 stickers – Tasimi & Wynn, 2016), we found that a small offering (five stickers) overcame this aversion as well, but on the condition the antisocial individual cooperated with the children or their ingroups. Second, 4 and 5-year-olds have a strong sense of group loyalty (Misch et al., 2014), which hold them back from exposing the severe transgression of an ingroup (vs. outgroup) member (Misch et al., 2018). Our work extends these results by showing that group loyalty influenced attitude and preferences but did not impact children's moral judgment of the antisocial behavior. In all four studies, neither cooperation nor personal benefits changed the children's perception of the harm inflicted on a third party as morally wrong. However, group loyalty and a cooperation context might explain why children preferred the antisocial character whose actions benefited them or their ingroup.

Finally, while past studies demonstrated that children have a strong aversion to antisocial others because they actively protest antisocial behavior (Schmidt et al., 2012), do not want to share resources with antisocial others (Hetherington et al., 2014), and dislike them (Wilks et al., 2018). Our studies have found evidence suggesting that this aversion to antisocial others may be overcome when the antisocial behavior benefits either children or members of their group.

Theoretical contribution

First, our results contribute to the theory of morality as a form of cooperation (Tomasello & Vaish, 2013; Vaish & Tomasello, 2014), demonstrating that children prefer and choose others who have helped them to achieve a goal for future cooperation. Still, when a goal is achieved by the harm inflicted on a third party, children display an aversion to the antisocial partner (Schmidt, et al., 2012; Vaish, Missana & Tomasello, 2011). However, this

aversion might be eliminated when achieving a goal that satisfies children's material interests. In other words, 4 and 5-year-old children recognize that the antisocial act of their partner is wrong, but they are also aware that their future success depends on the cooperation with the antisocial partner. Therefore, it implies that children's attitudes toward the antisocial partners and their decision for future cooperation with others depends not solely on material rewards but mostly on a sense of joint commitment and necessity of reciprocity.

As we demonstrated in Study 3, despite the egocentrism typical for young children, personal benefit from the wrongdoing was not enough to change the negative attitude toward the antisocial individual. These results corroborate findings showing that a reward by itself does not overcome children's moral concern (Hetherington, et al., 2014; Wilks & Nielsen, 2018). However, cooperation settings trigger a sense of group identity and joint commitment (Gräfenhain, et al., 2013; Hamann et al., 2011) which may change this aversion. Evidence from our studies suggests that group membership and joint commitment were not enough to overcome children's natural aversion to antisocial others. Only cooperation that was beneficial for the child, changed this aversion, suggesting a third option: reciprocity. Children could have felt gratitude toward the antisocial partner because the wrongdoing was beneficial for them and as a result, they may have felt jointly liable for their partner's actions. Therefore, despite that children judged the partner's actions as wrong, they also manifested their gratitude by expressing a positive attitude toward the partner and a willingness to maintain mutual collaboration.

Second, according to relationship regulation theory, moral judgments should be understood as a manifestation of different social relationship motives (Rai & Fiske, 2011). We know that infants (Hamlin et al., 2007; Hamlin & Wynn, 2011) and preschoolers (Bocian & Myslinska Szarek, 2020; Li & Tomasello, 2018; McAuliffe, Jordan, & Warneken, 2015; Smetana, Jambon, & Ball, 2014; Smetana & Ball, 2018) do not have a simple aversion to

individuals who harm third parties, but rather consider whether harmful actions were justified, which suggests that they are capable of making complex social judgments. For example, a recent study had demonstrated that 4-year-old children judged harmful behavior as less bad when the behavior was directed at the antisocial recipient than at the prosocial recipient. More importantly, children also displayed a positive attitude toward individual who harmed antisocial other and negative attitude toward individual who harmed prosocial other (Bocian & Myslinska Szarek, 2020). Therefore, our studies confirm that in the context of beneficial relationships, young children's attitudes reflect their desire to sustain cooperation with the antisocial partner. Correspondingly with relationship regulation theory (Rai & Fiske, 2011), cooperation that brings profit for a child triggers motivation to maintain unity and protect a beneficial relationship, even if it requires support for a partner who behaved antisocially.

Finally, in all four studies we found a discrepancy between the moral judgment of the antisocial partner's act (always evaluated as bad) and the attitude toward the antisocial partner, who was liked and preferred over other characters. These results confirm the assumptions underlying dynamic coordination theory (DeScioli & Kurzban, 2013), which argues that people use moral judgments strategically to coordinate condemnation based on public signals when deciding which side of a conflict to choose. Children's judgments of attitude and preferences might reflect their need to send a signal reassuring the partner that they would not abandon them in future endeavors. Separately, children's moral judgments might reflect their need to send the signal to potential third parties (in this case the experimenter) that they recognize the partner's actions as wrong to minimize potential personal conflicts.

Interestingly, discrepancies in children's social and moral judgments are in sharp contrast to studies with adults showing a positive and reciprocal relationship between moral judgments and liking. Moral persons are much more liked than immoral ones (Wojciszke,

Abele, & Baryla, 2009), and immoral acts are judged less immoral when the perpetrator is liked (Bocian, Baryla, Kulesza, Schnall, & Wojciszke, 2018). Moreover, liking mediates how a perpetrator's morality is judged by a perceiver when the perpetrator's actions are in the perceiver's interest (Bocian & Wojciszke, 2014). So, liking and judgments of morality are highly consistent among adults, which raises the question, why are they not consistent among young children?

One possibility is that 4 to 5-year-olds are too young to experience dissonance resulting from holding discrepant beliefs (liking somebody who is committing bad acts). Admittedly, several studies (including the classical forbidden toy experiment, Aronson & Carlsmith, 1963) showed dissonance reduction among young children, but all of those involved behavior as one of the dissonant elements. The discrepancy between two beliefs (like in the present experiments) may be a subtler case of inconsistency not yet experienced by young children.

The second possibility is that young children are less hypocritical than adults. In studies, adults could not admit to liking an immoral person who had benefited them, so they increased their judgments of the antisocial other and truly believed those judgments (Bocian et al., 2016). Contrastingly, present studies found evidence that young children can admit their liking of benefactors even when they act immorally. Discerning whether young children or adults are less hypocritical may be an interesting avenue for future empirical research.

The third possibility is that the presence of third parties in the current experiments (e.g., the experimenter asking questions) and their absence in studies on adults (e.g., judgments were anonymous; see Bocian & Wojciszke, 2014; Bocian et al., 2016) might explain the discrepancy in the results between young children and adults. For example, in the presence of the experimenter, people exercised moralistic punishment more than under conditions of anonymity (Kurzban, DeScioli, & O'Brien, 2007). Therefore, future studies

should investigate whether the presence of an audience influences children's and adults' strategic moral decision making in the context of beneficial cooperation.

Limitations and further directions

We recognize that our work has some limitations which might warrant future research. For example, we used a bipolar scale for moral judgment (good vs. bad) which might not capture the more nuanced differences in children's judgments of harm that well. Future studies could use five-point scales (e.g., lightning bolts vs. suns; Bocian & Myslinska Szarek, 2020) which help probe more deeply into how good or wrong a behavior was in the children's opinion. We also did not manipulate the quantity of the reward, which seems relevant in light of studies demonstrating that aversion to antisocial others may be overcome by large rewards (Tasimi et al., 2017).

Testing whether small rewards (fewer than five stickers), as well as large ones (more than ten stickers), yielded the same results as presented in our work might contribute to better understanding how strongly, in the context of cooperation, personal gains shape children's moral judgment of antisocial others. However, whether children value cooperation over personal benefits or vice versa, remains an open question.

At the age of 7, children become less selfish and more driven by moral considerations (Fehr et al., 2008; Sheskin et al., 2014) thus, a comparison between 5 and 7-year-olds in a beneficial cooperation with antisocial others context warrants future research. Moreover, we used hand puppets as victims and partners for cooperation. Although preschoolers perceive and treat puppets as real people (Schmidt, et al., 2012; Li & Tomasello, 2018; Plötner, et al., 2015), we cannot rule out that children might have seen the experimental task as gameplay with stuffed animals rather than as a real social situation. Therefore, the conceptual replication of present studies with peers instead of puppets is needed.

Conclusion

By systematically examining whether beneficial cooperation overcomes a 4 to 5-year-old's aversion to antisocial others, this research provides additional support for the theories which argue that morality is a form of cooperation (Tomasello & Vaish, 2013) while social and moral judgments serve a strategic function that regulates social relations (Rai & Fiske, 2011) to coordinate condemnation based on public signals (DeScioli & Kurzban, 2013). The present results suggest that in the context of cooperation with antisocial others, mere cooperation is not enough to overcome young children's aversion to individuals who harm third parties. However, when harming in a cooperative setting is beneficial for the child or child's ingroups, the negative attitude toward antisocial others is mitigated. Therefore, these results indicate that by the age of 4, children do not judge others solely on their moral behavior, but also on the social-relationship motives of the moment and the prospect of beneficial cooperation.

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