Testing the bounds of compassion in young children

James N. Kirby (✉ j.kirby@psy.uq.edu.au)

The University of Queensland

Matti Wilks

University of Edinburgh

Mitchell Green

The University of Queensland

Porntida Tanjitpiyanond

The University of Queensland

Nafisa Chowdhury

The University of Queensland

Kelly Kirkland

University of Melbourne

Mark Nielsen

The University of Queensland

Research Article

Keywords: compassion, competition, children, cost, motivation

Posted Date: February 4th, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-545449/v2>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Extensive research shows that, under the right circumstances, children are highly prosocial. Less is known about their capacity for compassion. Across five experiments ($N = 285$), we aimed to capture the bounds of 4-5-year-old children's compassionate behaviour. In the first three experiments we varied cost of compassion by changing the reward (Study 1), using explicit instructions (Study 2), and ownership (Study 3). In the final two experiments we varied the target of the compassionate behaviour, examining adults compared to puppet targets (Study 4), and whether the target was an in-group member (Study 5). We found strong evidence that cost reduces compassionate responding. By contrast, the recipient of compassion did not appear to influence compassionate responding: children were equally likely to help a human adult and a puppet, and an in-group member and neutral agent. Thus, personal cost appears to be a greater inhibitor to compassionate responding than who compassion is directed toward. These findings demonstrate the factors that may reduce compassionate responding in young children, and call for careful consideration of how to mitigate these to create more positive and socially connected environments for children to flourish.

Testing The Bounds Of Compassion In Young Children

Compassion is a complex prosocial motive, defined as the sensitivity to suffering in self and others, with a commitment to alleviate or prevent it [1]. Though similar to a range of prosocial competencies, such as sympathy and empathy, as well as kindness and altruism, compassion is, critically, distinct in its focus on engaging and responding to suffering [2]. There has been a growing body of research examining adaptive prosocial behaviours in children, yet the context in which these studies are conducted do not typically focus specifically on suffering. For example, seminal work by Warneken and Tomasello [3] found that in their second-year children engage in altruistic helping so others can complete an action-based goal. This body of research is critical in establishing the willingness of children to help and infer intended goals of others, yet, whether children help in contexts of suffering remains elusive. In the adult literature, it is well established that many experience personal distress when confronting suffering, which acts as an inhibitor to helpful action towards the target as they become overwhelmed themselves [4]. In childhood, this effect could be more pronounced, as competent helping to alleviate suffering requires a range of knowledge and skills, which children may not yet have acquired. Thus, it could be that children do not know how to act compassionately in times of suffering, not because they are not compassionate themselves, but rather they have not yet developed the skills specific to that context to enact the compassionate behavior [5].

It is important to understand compassion from a developmental perspective to gain insights into how this complex phenomenon emerges, and also how children experience and express compassion in interactions with others. This knowledge has important implications for how we relate to children at home and at school, as children might be criticised or punished for not showing adult expected compassionate behaviors towards others when they are suffering (e.g., when their sibling is upset) [6]. Moreover, by exploring the foundations of compassion in young children, the building blocks of this

phenomenon can be uncovered, facilitating the development of early intervention programs and yielding insights into how compassion might function in adults.

Over the past 20 years, there has been considerable work by developmental psychologists who have examined prosocial behaviours, specifically sympathy and empathy, and how these are associated with behaviour. Although sympathy, empathy and compassion are to an extent similar, they are different constructs. Eisenberg, VanSchyndel and Hofer [7] argue that although sympathy and compassion include concern for others, sympathy might not motivate the desire to help, whereas compassion does. In addition, Spinrad and Eisenberg [8], define empathy as, “an emotional experience that is the same (or nearly the same) as what the other person is feeling or expected to feel.” Critically, this definition of empathy does not include the need for behavior, whereas the definitions of compassion do [1, 2].

There has been a large body of work by Eisenberg and others showing that empathy is often associated with prosocial behavior, such as comforting, which is sometimes referred to as empathy-related responding. For example, some laboratory studies have found that children who showed facial sympathy and sometimes empathy towards a distressed target were positively associated with prosocial behavior in the form of donations [9]. Work has also found that higher sympathy is sometimes associated with costly prosocial behaviour [10]. However, children will also ignore or show no response to other's distress [11], and children aged between 4.5 and 6 years of age are selective with who they assist preferring friends and treating nonfriends less well when making resource allocation decisions [12]. Research with adults has found that empathy does not always lead to helping behavior [13], rather empathy can also be used to advance one's own personal ambition or self-interest [14]. Compassionate behaviour, however, must always have the goal of reducing suffering [1, 2]. The aim of this research, therefore, is to elucidate whether children do act compassionately in the context of suffering, and what factors may facilitate or inhibit this action.

What is Compassion?

Compassion is triggered by exposure to distress and suffering, which brings a diverse range of contextually appropriate emotions and actions that drive us to engage in care and prosocial behaviour to alleviate suffering [2]. Typically, compassion is directed towards interactions with kin or allies [15, 16], but can be expanded to a broader range of entities [17], such as strangers (e.g., charity), other species (e.g., whales, primates), and even sentient beings not yet born (e.g., concern about climate change for future generations).

Gilbert [2] proposes an evolutionary account of compassion, suggesting that it is an important biosocial motive, often competing with other motives (such as harm avoidance, status seeking, competition), and as such there are facilitators and inhibitors that turn on and off the compassionate algorithm. In compassion, facilitators can include using a self-reassuring/friendly inner voice tones [18], and using primes of safety and security [19]. Improving facilitators does not necessarily result in compassionate behaviour if there are inhibitors present [20]. For example, there is an inherent tendency to form groups and discriminate based on in- and out-group biases [21]. Group biases influence compassionate

responding, whereby compassion can be turned on for an in-group member (e.g., family, friend) and be inhibited for an out-group member (e.g., stranger). In the fields of altruism, prosociality, and empathy, other biases have been found to reduce helping behavior, such as the bystander effect [22], personal cost to self [23, 24], and competitive self-interest [25].

Developmental Studies Examining Compassion

It has been well established that children engage in instrumental and costly helping behaviours and will frequently share resources to help others [26, 27, 28]. Many studies have also examined boundary conditions on children's helping; Children help family more than strangers [29], in-groups more than out-groups [30], and those who have been previously helpful more than those who have not [29]. In some cases, children will even help when their peers do not [31]. However, these studies generally have not examined how children respond to targets who express explicit suffering, and, in many cases, the cost of helping is low or non-existent—a factor that has been shown to reduce compassionate responding [24].

Research also shows that children engage in sympathetic and empathic responding [32]. However, many of these studies have focused on physiological responses, such as pupil dilation [33], rather than a behavioural response [8]. Some studies have examined prosocial behaviour in the context of more explicit emotional suffering (i.e., visibly upset individuals). Findings suggest that toddlers typically respond to another's distress by either seeking comfort in their parents, exclaiming sympathetic sentiments towards the distressed target, or even ignoring the distressed target [32, 34]. While less frequent, some toddlers have been shown to exhibit prosocial behaviours in response to another's distress [35, 36]. Trommsdorff and colleagues [37] exposed preschool aged children to a distressed adult and found that prosocial behaviour toward the target (that involved personal cost) was positively related to sympathy and negatively related to self-focused distress. Finally, Green et al. [24] found that 4-year-old children would help a distressed puppet almost always when there was no personal cost to themselves, but when there was a personal cost helping rates dropped to floor levels. Although the Green et al [24] study identified the importance of cost in the context of suffering, the study did not examine explanatory factors that could explain this drop in helping beyond cost.

The Current Study

While extensive work has examined compassionate-adjacent behaviour, we are not aware of any studies that have examined contextual factors that may inhibit or facilitate compassionate behaviour in children. Drawing from the adult literature, we systematically test a range of potential inhibitors and facilitators to identify the bounds of compassionate responding in young children. Critically, the five experiments presented here use the previously tested Compassionate Responding Paradigm developed by Green, Kirby and Nielsen [24], and in these series of experiments we systematically vary cost and target. In the first three studies, we engage in a more nuanced exploration of cost, varying the reward (Study 1), the presence of explicit instructions (Study 2), and the ownership of resources (Study 3). Across all three studies, we predicted that personal cost would inhibit compassionate responding. In studies 4 and 5 we examine how the target of the compassion varies responding towards adults vs. puppets (Study 4) and

ingroup vs outgroup members (Study 5). Here, we predict that having targets that were adults (vs. puppets) and in-groups (vs. out-groups) would facilitate compassionate responding.

General Method

All studies were preregistered on the Open Science Framework (see https://osf.io/e78tb/?view_only=ff46e0f0a9894023b507af5a526afac6). All the experimental protocols used across the five studies were cleared and approved in accordance with the ethical review processes of the University of Queensland, and within the guidelines of the National Health and Medical Research Council's guidelines (#2019000651). All studies employed slight variations on the Green et al., [24] compassionate responding paradigm in which children played a series of games alongside a puppet. In each game, the puppet is unable to complete the game and the child can opt to help or not. In the original paradigm, Green et al. [24] varied whether there was a personal cost to the child to help the puppet (i.e. they had to give up their resources so the puppet can complete the task). High cost helping was considered compassionate behaviour. In the current studies, we replicated the high cost condition from Green et al., [24], where all helping behaviour incurs personal cost and can thus be considered compassionate behaviour.

Prior to being introduced to the games, children picked their three favourite stickers from a large selection. These constituted the rewards for completing the tasks in all studies with the exception of the no reward condition in Study 1. Children played three games with three different puppets—Millie the Monkey, Ellie the Elephant and George the Giraffe (images of the puppets are included in supplementary material). Each puppet participated in one of the three tasks and was never repeatedly paired with one task due to the randomization of puppets and task order.

Three tasks were used across each of the five studies. These were the (1) Sorting Task, (2) Marble Task and (3) Puzzle Task, which each require a participant to place objects together (e.g., place beads onto a stick; see supplementary materials for details of each task). Each task had two sets of equipment so that the child and puppet/adult could complete the tasks separately. In each scenario, the child had the correct number of pieces to finish the task, while the puppet/adult did not have enough pieces (missing two pieces) and hence was unable to finish the task unless the children acted compassionately and shared their pieces.

In each game the puppet/adult realized that they did not have sufficient pieces to finish the task and became distressed that they were unable to receive a sticker (e.g. *"Oh no...I don't have enough <appropriate to the task pieces> to finish the game. Now I'm not going to get a sticker...what am I going to do?"*). There were three distress prompts which allowed three opportunities for the child to help. The experimenter ended the task as soon as the child helped, or after the three prompts if the child did not help. Full scripts for all prompts are provided in supplementary materials.

We also assessed children's perception of the emotion of the puppet for all studies. At the end of the task, children were asked to indicate how the puppet felt when they realised that they did not have enough pieces to complete the task (see Supplementary material).

All studies in this manuscript made minor variations off this initial design, as described below.

Study 1: I'll Help You, But What's The Cost?

In this study we aimed to systematically explore how reward influences children's compassionate responding. Green et al. [24] gave children their stickers at the end of all three tasks. In this way, children may have been extrinsically rewarded by the stickers, decreasing their intrinsic motivation to help [38]. To explore this, we examined how an immediate reward (after each task) and no reward (although children still received stickers at the end of the entire experiment for their participation but they did not know this) would influence children's responding compared to the cost condition adapted from the Green et al. [24] study. Notably, the no reward condition tests children's propensity to help in the absence of external reward. By contrast, children in the immediate reward condition received their sticker during the task, while the (slow) puppet was still finishing. This meant that that they could help without losing their reward, thereby allowing us to isolate the role of reward in this paradigm. We predicted that the removal of the cost (no reward and immediate reward) would facilitate compassionate responding by children. Additionally, Green et al. [24] observed that children who did not help either consoled or disengaged from the puppet. Therefore, this experiment also examined these behaviours as an exploratory addition to the study.

Method

All participants were recruited through local childcare centers or a database of parents who had previously agreed to participate in research at a local university. Participation took place either at the childcare center or in a dedicated child-friendly testing space at the local university. Informed consent was provided by the parents for all participants. An online randomizer (<https://www.randomizer.org/>) was used to allocate child to condition. Once the session began, children were introduced to the puppet/adult and the experimenter explained the rules of the task. The task only began after children indicated that they understood the task. Upon completion of the task, children and caregivers were thanked and children who participated at the university were offered a reward as a thank you for participating. This procedure was the same for this and all other studies in this paper.

In this study we adapted the cost condition from the original paradigm [24], where the child had insufficient pieces to help the puppet and would, thus, have to give up a reward to act compassionately. In addition to this baseline (cost), we included two additional conditions: one where children did not receive any stickers during the game (no reward) and one where children received a reward after each task instead of at the end of all three (reward immediate condition). Notably, when the puppet was distressed in the no reward condition, they did not refer to the sticker in their distress prompt—instead saying “Oh no... I don't have enough <task pieces> to finish the game. Now I am not going to be able to finish the game... what am I going to do?”.

Participants

Sixty-eight children in total participated in this study. Eight children were excluded from the final analysis due to participant error ($n = 1$), experimenter error ($n = 6$) or failing to engage with the task ($n = 1$). The final sample included 60 children (22 males, 38 females) aged between 45 and 60 months ($M = 53.22$, $SD = 3.84$).

Coding

Helping was coded per task on a scale of 0-4. If a child helped without any prompting, they received the highest score and the more prompts required the lower the helping score. Children who did not help at all received a score of 0. Coding is identical for this and all further studies in this manuscript. There were independent research assistants across the five studies who acted as the second coders. Full coding scheme and reliability analyses for all studies are reported in supplementary material.

Results

In all studies, preliminary analyses revealed no effect of age, sex, task type, task order, puppet, and testing location on helping behaviour, thus these factors were not considered further.

Effect of Cost on Helping Behaviour

A one-way between groups ANOVA was conducted to evaluate the effect of condition on helping behaviour. There was a significant effect of condition on helping behaviour, $F(2, 30.18) = 4.85$, $p = 0.015$, $\eta^2 = 0.13$ (Figure 1). Post-hoc multiple comparisons, using Tukey's HSD test, revealed that helping behaviour was significantly higher for children in the reward immediate condition compared to children in the cost condition (Table 1). No other comparisons were significantly different.

Table 1 *Statistical results for helping behaviour analysis by condition.*

Condition	M (SD)	$t(57)$	p	Cohen's d
Cost vs. Reward Immediate	0.40 (1.10)	-2.88	.030	0.87
Cost vs. No Reward	3.10 (4.24)	-1.23	.199	0.56
Reward Immediate vs. No Reward	1.55 (2.69)	1.65	.363	0.44

Exploratory Analysis

With our scoring system, children who helped immediately and consistently across tasks received a higher score than children who helped later and rarely. However, it is possible that proportionately more children helped in the conditions that involved a sticker as a reward (e.g. cost and reward immediate conditions) than those without a sticker reward (e.g. no reward). To examine this, we analysed whether the proportion of children helping differed across conditions. Additionally, for children who did not help, we examined whether the proportions of children who consoled or disengaged from the distressed puppet differed across conditions. These were both coded in binary 0-1 (helped/not, consoled/not, disengaged/not). See supplementary material for full coding scheme. A chi-square test of homogeneity

was conducted to examine any differences in helping and disengaging behaviours. Fisher's Exact Probability Test was used for consoling behaviour because three of the expected cell counts were less than five [39].

Helping. A total of 18 children helped the distressed puppet. This included 3/30 children in the cost condition, 8/20 children in the reward immediate condition, and 7/20 children in the no reward condition (see Figure 2). There was no significant difference in the proportion of children that helped across the three conditions, $\chi^2(2, N = 60) = 3.33, p = .189, \phi = .236$.

Consoling. A total of 10 children consoled the distressed puppet when they did not help. There was no significant difference in proportion of children consoling the distressed puppet when they did not help across all three conditions, indicated by Fisher's Exact Test, $p = .572$. Across all studies, the Figures on consoling behavior are presented in supplementary material.

Disengaging. A total of 31 children disengaged from the distressed puppet when they did not help. This included 15/20 children in the cost condition, 8/20 children in the reward immediate and no reward condition. There was a significant difference in proportion of children disengaging from the distressed puppet when they did not help across conditions, $\chi^2(2, N = 60) = 6.54, p = .038, \phi = .330$. Following this, post-hoc pairwise comparisons were conducted using z-tests. The proportion of children who disengaged from the distressed puppet was significantly higher in the cost condition than in the reward immediate and no reward condition, $p = .038$. There was no significant difference between the proportion of children who disengaged from the distressed puppet in the reward immediate and no reward condition. Across all studies Figures on disengaging are presented in supplementary material.

In Study 1 we found that children help more in the immediate reward condition than the cost condition, indicating that cost does reduce helping. Moreover, of children who did not help, those in the cost condition were significantly more likely to disengage from the puppet than those in the immediate reward condition. However, there was no difference between the no reward condition and either the cost or reward immediate condition for these measures. We also found no effect of condition on the proportion of children who helped, or the proportion of children who consoled when they did not help.

Study 2: Explicit Instructions

In Study 2 we aimed to explore how explicit instructions impact children's compassionate responding. In the original paradigm [24] children were not given explicit instructions about whether they could help the puppet. In this way, the rules of the game were ambiguous, so children may have perceived that the compassionate action was against the rules, and going against the rules is a cost to children, moreover, items that we own are perceived as more costly to give up [40]. This aligns with findings that sharing behaviours rely on children's motivations *and* explicit cues for scaffolding and direction [26, 41, 42]. This carries important implications for observations of compassionate behaviours experimentally where children are in an unfamiliar situation with a stranger and may therefore require explicit instructions to overcome this inhibitor to compassionate responding. It may also be possible that children in Green et al.,

[24] interpreted the tasks as competitive (doing the same thing at the same time in a shared space, but not together). Competition has been shown to impede prosocial behaviour [43] and may also have acted as an inhibitor to compassion.

To examine how these two factors (instructions and perceived competition) influence compassionate responding, we again replicated the cost condition from the original paradigm. However, here we systematically varied whether children were given explicit instructions that they could share and the game was not a competition, or not (thus keeping the rules of the game ambiguous). We predicted that children who received explicit permission to share would be more compassionate than those who do not.

Method

This study adapted the cost condition from the original paradigm [24], but varied whether the experimenter explicitly told children that they could share, demonstrated how to share prior to beginning the game and told children the game was not a competition (explicit instruction condition). This was in contrast to a condition where children were not given any additional information (implicit instruction condition, as per the original paradigm).

Participants

In Study 2, 46 children were recruited, but five children were excluded from the final analysis due to participant or experimenter error. The final sample included 41 children (20 males, 21 females), aged between 46 and 62 months ($M = 53.07$, $SD = 4.18$).

Results

Effect of Instruction Type on Helping Behaviour

A one-way between groups ANOVA was conducted to evaluate the effect of condition on helping behaviour. There was no significant effect of condition on helping behaviour, $F(1, 38) = 3.26$, $p = .079$, $\eta^2 = .079$, such that there was no significant difference in the amount that children helped in the explicit ($M = 3.20$, $SD = 4.11$) and non-explicit ($M = 1.15$, $SD = 2.98$) conditions.

Exploratory Analyses

Helping. A total of 12 children helped the distressed puppet. This included 9/20 children in the explicit instructions condition and 3/20 children in the non-explicit instructions condition (Figure 3). The proportion of children who helped the puppet in the explicit instructions condition was significantly greater than the proportion of children who helped in the control condition, $\chi^2(1, N = 40) = 4.29$, $p = .038$.

Consoling. A total of two children consoled the distressed agent when they did not help. There was no significant difference in the proportion of children consoling the distressed agent when they did not help across both conditions, indicated by Fisher's Exact Test, $p = .708$.

Disengaging. A total of 18 children disengaged from the distressed puppet when they did not help. There was no significant difference in the proportion of children disengaging from the distressed puppet when they did not help across both conditions, indicated by Fisher's Exact Test, $p = .624$.

In Study 2 we found that explicit instructions increased the proportion of children who helped, such that significantly more children helped the puppet in the explicit instruction condition than in the non-explicit instruction condition. We found no condition differences in overall rates of helping, or the proportion of children who disengaged or consoled the puppet when they did not help.

Study 3: Not Mine, But Ours

In Study 3 we explore the role of resource ownership on children's compassionate responding. In the original paradigm [24] each child and puppet are given their own container of resources to compete the task. This may have created ownership bias—and past work shows that children are less likely to share resources that belong to them [36]. Svetlova and colleagues [36] theorize that this reflects children's inability to overcome possessiveness and object ownership to help another. Interestingly, children even display a preference for ('endowment effect') items arbitrarily positioned as their own [44]; defending these items aggressively compared to items 'owned' by the wider classroom [45].

Study 3 built on these findings in order to gain insight into how ownership effects motivations to act compassionately. We again replicated the cost condition from the Green et al. [24] paradigm, but varied whether the resources were owned by the child (individual condition) or part of a shared resource pool (shared condition). We predicted that children would help more in the shared resource condition than the individual resource condition.

Method

This study adapted the cost condition from the original paradigm [24]. However, children's resources (e.g. puzzle pieces) were either presented in separate boxes, so the child had their own resources (individual condition, as per the original paradigm), or presented in a large communal box to indicate that they are from a shared resource pool (shared condition). In the shared condition, children were also explicitly told that the resources were shared.

Participants

In Study 3, 45 children were recruited, but five children were excluded from the final analysis due to participant or experimenter error. The final sample included 40 children (15 males, 25 females) participated, aged between 48 and 61 months ($M = 52.55$, $SD = 3.44$).

Results

Effect of Resource Status on Helping Behaviour

A one-way between groups ANOVA was conducted to evaluate the effect of condition on helping behaviour. There was no significant effect of condition on helping behaviour, $F(1, 39) = .11$, $p = .743$, $\eta^2 =$

.003, such that there was no significant difference in the amount that children gave in the shared ($M = 1.90$, $SD = 3.59$) or individual ($M = 1.55$, $SD = 3.27$) conditions.

Exploratory Analyses

Helping. A total of nine children helped the distressed puppet. This included 5/21 children in the shared resources condition and 4/20 children in the individual resources condition (Figure 4). There was no significant difference in the proportion of children who helped across conditions, $\chi^2(1, N = 41) = .087$, $p = .768$.

Consoling. One child in the individual resources condition consoled the distressed puppet when they did not help. There were no consoling behaviours in the shared resources condition. There was no significant difference in the proportion of children consoling the distressed puppet when they did not help across both conditions, indicated by Fisher's Exact Test, $p = .500$.

Disengaging. A total of 28 children disengaged from the distressed puppet when they did not help. There was no significant difference in the proportion of children disengaging from the distressed puppet when they did not help across both conditions, indicated by Fisher's Exact Test, $p = .700$.

In Study 3 we found no effect of ownership on children's overall or proportionate helping, consoling or disengaging behaviour. Children were equally likely to help, and equally likely to disengage or console when they did not help, regardless of whether the task pieces were shared or owned by the individual.

Study 4: Who Am I Helping? (Adult Vs. Puppet Target)

In Study 4 we aim to explore how the target of compassion influences children's compassionate responding. Across all variations of the original paradigm [24] puppets were used as the distressed target. Children possess the ability to attribute biological and psychological characteristics to inanimate objects including stuffed toys and imaginary companions [46]. Moreover, several studies have shown that children treat puppets in a similar manner to humans [47] and identify with a puppet in-group [48]. However, other work has found that children can understand human emotions better than puppet emotions [49]. Given that compassion defined by the motivation to alleviate another's suffering, it is critical that children understand the suffering of the target. Perhaps children are not sufficiently sensitive to a puppet target to elicit compassionate responding. We, therefore, vary whether the target of compassion is a puppet or an adult human — predicting that children will behave more compassionately to human targets than puppet targets.

Method

We again replicated the cost condition in the original compassionate responding paradigm [24]. However, we varied whether the distressed agent was a puppet (puppet condition) or an adult human (adult condition). Unlike other conditions, in the adult condition we also had two adult experimenters, one who was the confederate in the study completing the tasks with the child, and a second adult experimenter

providing instructions. We therefore measured social referencing behaviour of the children to the adult experimenter.

Participants

In study 4, 44 children were recruited, but four children were excluded from the final analysis due to participant or experimenter error. The final sample was 40 children (14 males, 26 females), aged between 47 and 60 months ($M = 54.15$, $SD = 3.40$).

Results

Effect of Agent Type on Helping Behaviour

A one-way between groups ANOVA was conducted to evaluate the effect of condition on helping behaviour. There was no significant effect of condition on helping behaviour, $F(1, 38) = 1.45$, $p = .236$, $\eta^2 = .037$, such that children were equally likely to help an adult agent ($M = .65$, $SD = 1.69$) and a puppet agent ($M = 1.50$, $SD = 2.67$).

Exploratory Analyses

Helping. A total of 11 children helped the distressed agent. This included 4/20 children in the adult condition and 7/20 children in the puppet condition (See Figure 5). The proportion of children helping the agent did not significantly differ by condition, $\chi^2(1, N = 40) = 1.13$, $p = .288$.

Consoling. A total of four children consoled the distressed agent when they did not help. There was no significant difference in the proportion of children consoling the distressed agent when they did not help across both conditions, indicated by Fisher's Exact Test, $p = .698$.

Disengaging. A total of 19 children disengaged from the distressed agent when they did not help. There was no significant difference in the proportion of children disengaging from the distressed agent when they did not help across both conditions, indicated by Fisher's Exact Test, $p = .438$.

Social Referencing. In the adult condition, when the adult became distressed, 14/20 children demonstrated social referencing by looking at the other experimenter in the room. In trial 1, 12/20 children socially referenced. In trials 2 and 3, 11/20 children socially referenced. There was no significant difference in the proportion of children who helped the distressed adult between those who socially referenced and those who did not, indicated by Fisher's Exact Test, $p = .549$.

In Study 4 we found no effect of recipient on children's helping, such that they helped adult and puppets the same amount, were equally likely to help adult and puppets, and equally likely to console and disengage from adults and puppets when they did not help. This finding could have been partly driven by having a third party, the adult experimenter in the room, who the child often referred to as a possible gauge on what to do.

Study 5: Help Me, We Are In The Same Group!

In Study 5 we test a different social boundary of compassion: group membership. There is extensive literature demonstrating that young children are strongly biased toward in-groups. Children like in-group members more [30, 48, 50, 51], prefer them as social learning models for both selective trust [52] and imitation tasks [52, 53], and also behave more prosocially towards them; opting to share resources with them over others [29, 54]. Yet, no work has examined group biases in the context of explicit compassion. Interestingly, our sense of group membership is malleable and can be influenced by contextual factors. Research using minimal group paradigms, where group membership is arbitrary (i.e., temporarily assigning group colour), found that it is sufficient to induce in-group preference and helping [30, 55, 56, 57, 58]. We, thus, examined how group bias in a minimal group context would influence compassionate behaviour. We predicted that children would be more compassionate to those who are group members compared to those who are not.

Method

We again replicated the cost condition in the original compassionate responding paradigm [24]. However, we varied whether the recipient of help (the puppet) was a member of the child's group or not. There were three levels of group membership: no group, group assignment, and enhanced group assignment. In the group assignment conditions, a minimal group paradigm was used where the child and puppet were assigned to the same group, which was established by them wearing the same group color (a yellow sash and bandana). Children and puppets were assigned to groups by drawing out a coloured token from the same drawstring bag. However, unbeknown to children, there were only yellow tokens and thus, children and puppets were always in the same yellow group. The group enhancement condition also included the puppets verbally highlighting their shared group membership with the children. This was done by including an additional sentence to the original distress prompts (see Supplementary Materials). Thus, children were either assigned to a no group condition, to the same group as the puppet using a minimal group paradigm (group assignment condition), or to the same group as the puppet and the puppet referenced this in their distress (e.g. "*We're in the same group, you are getting a sticker but I won't*") (group enhancement condition).

Participants

In Study 5 a total of 82 children participated in this experiment. Five children were excluded from the final analysis due to experimenter error or participant error. The final sample included 77 children (35 males: 42 females) aged between 44 and 61 months ($M = 53.21$, $SD = 3.92$).

Results

Effect of Group Membership on Helping Behaviour

We conducted a one-way between groups ANOVA to examine the influence of condition on helping behavior. There was no significant effect of condition on helping behaviour, $F(2, 74) = 0.67$, $p = .513$, $\eta^2 = 0.02$, such that children were equally likely to help in the no group ($M = 3.24$, $SD = 0.81$), group assignment ($M = 2.29$, $SD = 0.58$), and group enhancement ($M = 2.13$, $SD = 0.80$) conditions.

Exploratory Analyses

Helping. A total of 33 children helped the puppet when it was distressed, 12/25 children in the no group condition, 14/28 in the group assignment condition and 7/24 in the group enhancement condition. There was no significant difference in the proportion of children that helped the puppet across all the conditions, $p = .261$.

Consoling. A total of 16 children consoled when they did not help the puppet when it was distressed. There was no significant difference in the proportion of children consoling the distressed target across conditions, indicated by Fisher's exact test, $p = .414$.

Disengaging. A total of 39 children disengaged when they did not help the distressed puppet, 16/24 children in the group enhancement condition, 15/28 children in the group assignment condition, and 8/25 children in the no group condition, a significant difference in proportion, $p = .049$. Post-hoc multiple comparisons using the z-test of two proportions, revealed that the proportion of children who disengaged in the group enhancement condition was significantly higher than in the no group condition, $p = .018$. The proportion of children who disengaged in the group assignment condition was not statistically different from either the no group or group enhancement conditions, $p = .117$.

Due to significant differences in proportion for disengaging behaviour across conditions, we also conducted a binomial logistic regression to ascertain the effect of condition on the likelihood of children disengaging. The logistic regression model was statistically significant, $\chi^2 (df = 1, N = 77) = 6.16, p = .046$. The model explained 10% (Nagelkerke R^2) of the variance in disengagement and correctly classified 62.3% of cases. In comparison to no group condition, group enhancement condition was a significant predictor of disengagement behavior (Table 2), such that being in the group enhancement condition is associated with an increase in the odds of disengagement by a factor of 4.25.

Table 2 Result From Logistic Regression Between Condition and Disengagement.

Variables	B	SE	Wald	df	Sig.	Odds Ratio	95% CI for odds ratio	
							Upper	Lower
Group Assignment	.90	.57	2.46	1	.117	2.45	0.80	7.53
Group Enhancement	1.45*	.61	5.64	1	.018	4.25	1.29	14.03
Constant	-.75	.43	3.09	1	.079	.47		

* $p < .05$. Note the no group condition is omitted from this table as it was irrelevant to the comparison.

In Study 5 we found that the proportion of children who disengaged after not helping the puppet was significantly higher in the group enhancement condition than the control condition. We do not find any

effect of group membership on overall rates of helping, or the proportion of children who engaged in helping or consoling behaviour when they did not help.

General Discussion

In this series of studies, we aimed to explore the bounds of compassion in young children. Across five studies, we examined the role of cost (Studies 1-3) and the recipient of compassion (Studies 4 and 5) in 4-5-year-old children using an adapted version of an established compassionate responding paradigm [24]. We found strong evidence that cost reduces compassionate responding. When children were able to help without sacrificing their reward, rates of helping increased. Similarly, when they were given explicit instructions indicating that they could help—and thus helping was foregrounded—rates increased. That is, when the competitive aspect of the task is removed children appear more willing to help. By contrast, the recipient of compassion did not appear to influence compassionate responding: children were equally likely to help a human adult and a puppet, and an in-group member and neutral agent.

These findings indicate that personal cost is a greater inhibitor to compassionate responding than who compassion is directed toward. This aligns with adult literature which suggests that personal cost to self [23], and competitive self-interest [25] are inhibitors to compassion. Lowenstein and Small [59] proposed a prosocial model suggesting that when we engage in compassionate actions we are either moved emotionally or we cognitively deliberate on whether to take compassionate action. In our series of studies, it could be that children are deliberating on the costs and benefits of acting compassionately, with the cost of foregoing the reward being greater than anticipated benefits to the target. This may be specific to this age group, and older children may perceive more accurately the benefit the compassionate actions have for the target. It could also be that for the 4-year-olds in the current studies the cognitive control to forego own rewards for the benefit of others is too costly, and compassionate helping is avoided. However, not all methods of reducing cost increased compassion. In Study 3, drawing from a pool of shared resources had little impact on how children perceived cost and responded to suffering from the puppet. It is possible that children saw the ‘finite’ amount of resources available in the shared bucket and realised they had to get the pieces they needed before the puppet. In this way, the shared resource condition may have primed competitive self-interest, as opposed to increasing compassionate behaviour.

Limitations And Future Directions

Although rates of helping increased when cost was removed or reduced, rates were still low overall; none of our manipulations led to moderate rates of helping. Even in the explicit instruction condition only 50% of the children helped, and they only helped after a series of distress prompts. Although this is consistent with past research detailing that young children are often unwilling to engage in costly prosocial behaviour [60], it is possible that something about this particular paradigm produces low helping rates. For example, the parallel nature of both puppet and child completing the same task may have led to a more competitive environment. A different procedural paradigm where the child and puppet are completing different tasks or activities that still manipulates cost and distress might be able to shed

further light into this compassionate responding. Additionally, participants cultural backgrounds may have contributed to their low level helping. Past work has revealed clear cross-cultural differences in helping behaviour [61]. Most participants in these studies were from WEIRD (Western, Educated, Industrialised, Rich, Democratic) populations which are known to be individualistic. Examining compassionate responding in more collectivist cultures or cultures that place greater emphasis on compassion could lead to different response patterns.

Although compassionate responding was low across all studies, children did distinguish between targets in some compassionate responses (e.g., more disengaging after not helping in-group members). In Study 4 the target (puppet or adult) did not appear to greatly influence their compassionate responding. This suggests that they may be, at least somewhat, impartial in their compassionate responding. This contrasts the dominant narrative that young children are self-serving [62], but aligns with recent work suggesting that children may be more morally expansive than adults in certain contexts [63].

There are also other facilitators that have been shown to influence compassionate responding in adults that were not tested here, such as prosocial modelling, or perhaps a target where a bond has been formed, or the puppet is a liked or disliked target. Notably most of these suggested factors vary at an individual level, rather than being context specific as was the case for all facilitators and inhibitors tested here. As such, these individual differences may represent a more promising avenue to increasing compassionate responding. Finally, a developmental analysis was not explored in the current studies, and older children may respond differently. As children age social norms are more embedded and children display greater self-control, thus children from this age may be more willing (or able) to engage in compassionate behaviour, as has been found with other prosocial and altruistic behaviours [63, 64, 65]. Expanding on this, the research of compassion science could benefit greatly by designing experiments that have clear cost and benefit dilemmas included. This would lead to more ecologically valid paradigms, as in everyday life people are constantly having to deliberate the pros and cons of acting compassionately. Currently, most prosocial research with children do not include clear costs, and while there is some work examining costs to prosocial helping in adolescents [66, 67] and adulthood [68], continued systematic examination of the cognitively deliberative task of cost-benefit decisions to acting compassionately is needed to understand the complex prosocial construct of compassion.

Conclusion

Here we provide the first test of the bounds of children's compassionate responding in a behavioural task. We find strong evidence that personal cost is a key inhibitor to compassionate behaviour, which in turn suggests that reducing cost may facilitate compassion. Our findings also indicate that young children are impartial in where their compassion is directed—being similarly willing to help in-groups and outgroups, as well as humans and puppets. Finally, we find behavioural evidence of guilt or shame associated with not helping. Work by Vaish and colleagues [69, 70] typically find that guilt helps motivate prosocial behavior, particularly in contexts where a mishap leads to harm. Taken together, these five studies provide the first systemic exploration of the contextual factors that inhibit and facilitate compassion in young

children. If we are to build more compassionate communities, it is imperative that we institute ways of overcoming its obstacles early in development. The research presented here suggests that, at least in young children, the best avenue is to do so in circumstances that do not demand individual cost. Further exploration of the ideas presented here promise to yield additional insights that will help foster environments that are more socially connected, involve more positive relationships with others, and enhance positive wellbeing.

Declarations

Author Contributions: J.N.K., M.N., M.G., and M.W. designed research; J.N.K., K.K., N.C., P.T., and M.G. performed research; K.K., N.C., and P.T. analyzed data; J.N.K., M.W., M.N., K.K., M.G., N.C., and P.T. wrote the paper; J.N.K., M.W., M.N., K.K., N.C., and P.T. provided feedback on written material.

Conflict of Interest: The authors have no conflict of interest to declare

Ethics Declaration: All studies had been cleared in accordance with the ethical review processes of the University of Queensland, and within the guidelines of the National Health and Medical Research Council's guidelines (#2019000651).

Data Availability: Available on the Open Science Framework (https://osf.io/e78tb/?view_only=ff46e0f0a9894023b507af5a526afac6)

References

1. Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology*, 53, 6–41. <https://doi.org/10.1111/bjc.12043>.
2. Gilbert, P. (2019). Explorations into the nature and function of compassion. *Current Opinion in Psychology*, 28, 108–114. <https://doi.org/10.1016/j.copsyc.2018.12.002>
3. Warneken, F., & Tomasello, M. (2006). Altruistic helping in human infants and young chimpanzees. *Science*, 311, 1301. <https://doi.org/10.1126/science.1121448>
4. Vitaliano, P. P., Zhang, J., & Scanlan, J. M. (2003). Is caregiving hazardous to one's health: A meta-analysis. *Psychological Bulletin*, 129, 946–972. <https://doi.org/10.1037/0033-2909.129.6.946>.
5. Chernyak, N., Harvey, T., Tarullo, A.R., Rockers, P.C., & Blake, P.R. (2018). Varieties of Young Children's Prosocial Behavior in Zambia: The Role of Cognitive Ability, Wealth, and Inequality Beliefs. *Frontiers in Psychology*, 9, 2209. doi: 10.3389/fpsyg.2018.02209
6. Kirby, J.N. (2020). Nurturing family environments for children: Compassion-focused parenting as a form of parenting intervention. *Education Sciences*, 10, 3. <https://doi.org/10.3390/educsci10010003>
7. Eisenberg, N., VanSchyndel, S. K., & Hofer, C. (2015). The association of maternal socialization in childhood and adolescence with adult offspring's sympathy/caring. *Developmental Psychology*, 51, 7–16. doi:10.1037/a0038137

8. Spinrad, T.L., & Eisenberg, N. (2017). Compassion in children. In E. M. Seppälä, E. Simon-Thomas, S. L. Brown, M. C. Worline, C. D. Cameron, & J. R. Doty (Eds.), *The Oxford Handbook of Compassion Science*. Oxford University Press. Doi:10.1093/oxfordhb/9780190464684.013.5
9. Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial behavior. In N. Eisenberg (Vol. Ed.), W. Damon, & R. M. Lerner (Series Eds.), *Handbook of Child Psychology: Vol. 3. Social, Emotional, and Personality Development* (6th ed.; pp. 646–718). New York: Wiley.
10. Eisenberg, N., & Shell, R. (1986). The relation of prosocial moral judgment and behavior in children: The mediating role of cost. *Personality and Social Psychology Bulletin*, *12*, 426-433. doi:10.1177/0146167286124005
11. Spinrad, T. L., & Stifter, C. A. (2006). Toddlers' empathy-related responding to distress: Predictions from negative emotionality and maternal behavior in infancy. *Infancy*, *10*(2), 97–121. doi:10.1207/s15327078in1002_1
12. Moore, C. (2009). Fairness in children's resource allocation depends on the recipient. *Psychological Science*, *20*, 944–948. doi:10.1111/j.1467-9280.2009.02378.x
13. Decety, J., & Cowell, J. M. (2014). The complex relation between morality and empathy. *Trends in cognitive sciences*, *18*(7), 337–339. <https://doi.org/10.1016/j.tics.2014.04.008>
14. Zaki, J. (2014). Empathy: A motivated account. *Psychological Bulletin*, *140*, 1608–1647. <https://doi.org/10.1037/a0037679>
15. Buss, A. H. (2014). *Personality: Evolutionary heritage and human distinctiveness*. New York, NY: Psychology Press.
16. Loewenstein, G., & Small, D. A. (2007). The Scarecrow and the Tin Man: The vicissitudes of human sympathy and caring. *Review of General Psychology*, *11*, 112–126. <https://doi.org/10.1037/1089-2680.11.2.112>.
17. Singer, P. (1981). *The expanding circle: Ethics and sociobiology*. Farrar, Straus & Giroux
18. Kim, J.J., Parker, S.L., Doty, J.R., Cunningham, R., Gilbert, P., & Kirby, J.N. (2020). Neurophysiological and behavioural markers of compassion. *Scientific Reports*, *10*, 6789 | <https://doi.org/10.1038/s41598-020-63846-3>
19. Mikulincer, M., Shaver, P. R., Gillath, O., & Nitzberg, R. A. (2005). Attachment, caregiving, and altruism: Boosting attachment security increases compassion and helping. *Journal of Personality and Social Psychology*, *89*(5), 817–839.
20. Gilbert, P., & Mascaro, J. S. (2017). Compassion fears, blocks and resistances: An evolutionary investigation. In E. M. Seppälä, E. Simon-Thomas, S. L. Brown, M. C. Worline, C. D. Cameron, & J. R. Doty (Eds.), *The Oxford Handbook of Compassion Science*. Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190464684.013.29>
21. Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American*, *223*, 96–102. Bibcode:1970SciAm.223e..96T.
22. Fischer, P., Krueger, J. I., Greitemeyer, T., Vogrinic, C., Kastenmüller, A., Frey, D., ... Kainbacher, M. (2011). The bystander-effect: A meta-analytic review on bystander intervention in dangerous and

- non-dangerous emergencies. *Psychological Bulletin*, 137, 517–537.
23. Preston, S. D. (2013). The origins of altruism in offspring care. *Psychological Bulletin*, 139, 1305–41.
 24. Green, M., Kirby, J. N., & Nielsen, M. (2018). The cost of helping: An exploration of compassionate responding in children. *British Journal of Developmental Psychology*. doi:10.1111/bjdp.12252
 25. Crocker, J., & Canevello, A. (2008). Creating and undermining social support in communal relationships: the role of compassionate and self-image goals. *Journal of Personality & Social Psychology*, 95, 555–575. doi: 10.1037/0022-3514.95.3.555
 26. Brownell, C., Iesue, S., Nichols, S., & Svetlova, M. (2013). Mine or Yours? Development of Sharing in Toddlers in Relation to Ownership Understanding. *Child Development*, 84(3), 906–920.
 27. Miller, J. G., Kahle, S., Lopez, M., and Hastings, P. D. (2015). Compassionate love buffers stress-reactive mothers from fight-or-flight parenting. *Dev. Psychol.* 51, 36–43. doi: 10.1037/a0038236
 28. Warneken, F., & Tomasello, M. (2007). Helping and cooperation at 14 months of age. *Infancy*, 11(3), 271–294. doi:10.1111/j.1532-7078.2007.tb00227.x
 29. Olson, K.R., & Spelke, E.S. (2008). Foundations of cooperation in young children. *Cognition*, 108, 222–231. doi:10.1016/j.cognition.2007.12.003
 30. Dunham, Y., Baron, A. S., & Carey, S. (2011). Consequences of 'minimal' group affiliations in children. *Child Development*, 82(3), 793–811. doi:10.1111/j.14678624.2011.01577.x
 31. Engelmann, J. M., Over, H., Herrmann, E., & Tomasello, M. (2013). Young children care more about their reputation with ingroup members and potential reciprocators. *Developmental Science*, 16(6), 952–958. doi:10.1111/desc.12086
 32. Spinrad, T. L., & Stiffer, C. A. (2006). Toddlers' empathy-related responding to distress: Predictions from negative emotionality and maternal behavior in infancy. *Infancy*, 10, 97–121. https://doi.org/10.1207/s15327078in1002_1
 33. Hepach, R., Vaish, A., & Tomasello, M. (2012). Young children are intrinsically motivated to see others helped. *Psychological Science*, 23, 967–972. doi:10.1177/0956797612440571
 34. Liew J, Eisenberg N, Spinrad TL, Eggum ND, Haugen RG, Kupfer A, Baham ME. (2011). Physiological regulation and fearfulness as predictors of young children's empathy-related reactions. *Social Development*, 20, 111–134. <http://dx.doi.org/10.1111/j.1467-9507.2010.00575.x>.
 35. Zahn-Waxler, C., Iannotti, R., & Chapman, M. (1982). Peers and prosocial development. In K. H. Rubin & H. S. Ross (Eds.), *Peer relationships and social skills in childhood* (pp. 133–162). New York: Springer-Verlag.
 36. Svetlova, M., Nichols, S. R., & Brownell, C. A. (2010). Toddlers' prosocial behavior: From instrumental to empathic to altruistic helping. *Child Development Perspectives*, 81, 1814–1827. <https://doi.org/10.1111/j.1467-8624.2010.01512.x>
 37. Trommsdorff, G., Friedlmeier, W., & Mayer, B. (2007). Sympathy, distress, and prosocial behavior of preschool children in four cultures. *International Journal of Behavioral Development*, 31(3), 284–293. doi:10.1177/0165025407076441

38. Warneken, F., & Tomasello, M. (2008). Extrinsic rewards undermine altruistic tendencies in 20-month-olds. *Developmental Psychology*, *44*, 1785–1788. doi:10.1037/a0013860
39. Liddell, D. (1976). Practical tests of 2x2 contingency tables. *The Statistician*, *25*, 295–304. doi:10.2307/2988087.
40. Rossano, F., Rakoczy, H., & Tomasello, M. (2011). Young children's understanding of violations of property rights. *Cognition*, *121*(2), 219–227. doi:10.1016/j.cognition.2011.06.007
41. Brownell, C. A., Svetlova, M., & Nichols, S. (2009). To share or not to share: When do toddlers respond to another's needs? *Infancy*, *14*(1), 117–130. doi:10.1080/15250000802569868
42. Gergely, G. & Csibra, G. (2006). Sylvia's recipe: Human culture, imitation, and pedagogy. In: N. J. Enfield & S. C. Levinson (Eds.), *Roots of Human Sociality: Culture, Cognition, and Human Interaction* (pp.229–255). Berg Press, London.
43. Pappert, A., Williams, A., & Moore, C. (2017). The Influence of Competition on Resource Allocation in Preschool Children. *Social Development*, *26*(2), 367–381. doi:10.1111/sode.12202
44. Gelman, S. Manczak, E., & Noles, N. (2012). The non-obvious basis of ownership: Preschool children trace the history and value of owned objects. *Child Development*, *83*, 1732–1747. Doi: 10.1111/j.1467-8624.2012.01806.x
45. Ross, H.S. (1996). Negotiating principles of entitlement in sibling property disputes. *Developmental Psychology*, *32*, 90–101. Doi: 10.1037/0012-1649.32.1.90
46. Piaget, J. (1929). *The child's conception of the world*. London: Kegan Paul, Trench & Trubner.
47. Schmidt, M. F., Rakoczy, H., & Tomasello, M. (2012). Young children enforce social norms selectively depending on the violator's group affiliation. *Cognition*, *124*(3), 325–333. doi:10.1016/j.cognition.2012.06.004
48. Hetherington, C., Hendrickson, C., & Koenig, M. (2014). Reducing an in-group bias in preschool children: The impact of moral behavior. *Developmental Science*, *17*, 1042–1049.
49. Beentjes, H., Boe, D., & Heijink, H. (1997). Young Children's Understanding of Emotions Portrayed by Puppets and Actors in 'Sesamstraat'. *Communications*, *22*(4), 383.
50. Aboud, F. E. (2003). The formation of in-group favoritism and out-group prejudice in young children: Are they distinct attitudes? *Developmental Psychology*, *39*(1), 48–60. <https://doi.org/10.1037//0012-1649.39.1.48>
51. Nesdale, D., & Flessner, D. (2001). Social Identity and the Development of Children's Group Attitudes. *Child Development*, *72*(2), 506–517. <https://doi.org/10.1111/1467-8624.00293>
52. Buttelmann, D., Zmyj, N., Daum, M., & Carpenter, M. (2013). Selective imitation of in-group over out-group members in 14-month-old infants. *Child Development*, *84*, 422–428.
53. Howard, L.H., Henderson, A.M.E., Carrazza, C., & Woodward, A.L. (2015). Infants' and Young children's imitation of linguistic in-group and out-group informants. *Child Development*, *86*, 259–275.
54. Kenward, B., & Dahl, M. (2011). Preschoolers Distribute Scarce Resources According to the Moral Valence of Recipients' Previous Actions. *Developmental Psychology*, *47*(4), 1054–1064.

55. Bigler, R., & Liben, L. (2007). Developmental intergroup theory: Explaining and reducing children's social stereotyping and prejudice. *Current Directions in Psychological Science*, *16*(3), 162–166. doi:10.1111/j.1467-8721.2007.00496.x
56. Dunham, Y., & Emory, J. (2014). Of affect and ambiguity: The emergence of preference for arbitrary in-groups. *Journal of Social Issues*, *70*(1), 81–98. doi:10.1111/josi.12048
57. Misch, A., Over, H., & Carpenter, M. (2016). I won't tell: Young children show loyalty to their group by keeping group secrets. *Journal of Experimental Child Psychology*, *142*, 96–106. doi:10.1016/j.jecp.2015.09.016
58. Patterson, M. M., & Bigler, R. S. (2006). Preschool children's attention to environmental messages about groups: Social categorization and the origins of intergroup bias. *Child Development*, *77*(4), 847–860. doi:10.1111/j.1467-8624.2006.00906.x
59. Loewenstein, G., & Small, D.A. (2007). The scarecrow and the tin man: the vicissitudes of human sympathy and caring. *Review of General Psychology*, *11*, 112–126. DOI: 10.1037/1089-2680.11.2.112
60. Smith, C. E., Blake, P. R., & Harris, P. L. (2013). I should but I won't: Why young children endorse norms of fair sharing but do not follow them. *PLoS ONE*, *8*(3), e59510. doi:10.1371/annotation/4b9340db-455b-4e0d-86e5-b6783747111f
61. Blake, P. R., & McAuliffe, K. (2011). "I had so much it didn't seem fair": Eight-year-olds reject two forms of inequity. *Cognition*, *120*(2), 215–224. <https://doi.org/10.1016/j.cognition.2011.04.006>
62. Bloom, P. (2013). *Just Babies*. Crown: New York.
63. Wilks, M., Caviola, L., Kahane, G., & Bloom, P. (2020). Children prioritize humans over animals less than adults do. *Psychological Science*, forthcoming
64. Benenson, J. F., Pascoe, J., & Radmore, N. (2007). Children's altruistic behavior in the dictator game. *Evolution and Human Behavior*, *28*(3), 168–175. <https://doi.org/10.1016/j.evolhumbehav.2006.10.003>
65. House, B. R., Kanngiesser, P., Barrett, H. C., Broesch, T., Cebioglu, S., Crittenden, A. N., Erut, A., Lew-Levy, S., Sebastian-Enesco, C., Smith, A. M., Yilmaz, S., & Silk, J. B. (2020). Universal norm psychology leads to societal diversity in prosocial behaviour and development. *Nature Human Behaviour*, *4*(1), 36–44. <https://doi.org/10.1038/s41562-019-0734-z>
66. House, B. R., & Tomasello, M. (2018). Modeling social norms increasingly influences costly sharing in middle childhood. *Journal of Experimental Child Psychology*, *171*, 84–98. <https://doi.org/10.1016/j.jecp.2017.12.014>
67. Spadafora, N., Marini, Z.A., & Volk, A.A. (2020). Should I defend or should I go? An adaptive, qualitative examination of the personal costs and benefits associated with bullying intervention. *Canadian Journal of Psychol Psychology*, *35*, 23–40. DOI: 10.1177/0829573518793752.
68. Scheffer, J.A., Cameron, C.D., Inzlicht, M. (2021). Caring is costly: People avoid the cognitive work of compassion. *Journal of Experimental Psychology: General*. DOI: 10.1037/xge0001073

69. Vaish, A., Carpenter, M., & Tomasello, M. (2016). The early emergence of guilt-motivated prosocial behavior. *Child Development*, 87, 1772–1782. <https://doi.org/10.1111/cdev.12628>

70. Vaish, A., Carpenter, M., & Tomasello, M. (2011). Young children's responses to guilt displays. *Developmental Psychology*, 47, 1248–1262. <https://doi.org/10.1037/a0024462>

Figures

Figure 1

The effect of condition on helping behaviour. Error bars represent +/- 1 standard error of the mean for each condition.

Figure 2

Percentage of children who helped or did not help within each condition.

Figure 3

Percentage of children who helped or did not help within each condition.

Figure 4

Percentage of children who helped or did not help within each condition.

Figure 5

Percentage of children who helped or did not help within each condition.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SupplementaryMaterialALL20.05.2021.pdf](#)