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Finish What you Started: 2-Year-Olds Motivated by a Preference for Completing Others' Unfinished Actions in Instrumental Helping Contexts

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Abstract

A considerable body of research has documented the emergence of what appears to be instrumental helping behavior in early childhood. The current study tested the hypothesis that one basic psychological mechanism motivating this behavior is a preference for completing unfinished actions. To test this, a paradigm was implemented in which 2-year-olds ($n = 34$, 16 females/18 males, mostly White middle-class children) could continue an adult's action when the adult no longer wanted to complete the action. The results showed that children continued the adult's actions more often when the goal had been abandoned than when it had been reached ($OR = 2.37$). This supports the hypothesis that apparent helping behavior in 2-year-olds is motivated by a preference for completing unfinished actions.

Keywords: Prosocial behavior; Helping; Altruism; Goal contagion; Cognitive development; Motivation

Humans are characterized by the pervasiveness and flexibility with which we cooperate. In attempting to account for this hallmark of human sociality, comparative and developmental psychologists have increasingly become interested in the emergence of prosocial behavior

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in infancy and early childhood, that is, the emergence of "behaviors benefiting another person without providing the helper an immediate payoff" (Paulus, 2014), or "behaviors that are intended to benefit others" (Jensen, 2016). In particular, it has been observed that from the second year of life, toddlers appear to spontaneously help others to achieve goals, such as grasping an out-of-reach object, opening a cabinet door, or stacking books (Svetlova, Nichols, & Brownell, 2010; Warneken & Tomasello, 2006, 2009). Despite a large body of research, there is still ongoing debate about the psychological mechanisms underlying early helping behavior (Eisenberg, VanSchyndel, & Spinrad, 2016; Köster & Kärtner, 2019; Martin & Olson, 2015; Paulus, 2014).

One hypothesis which is commonly offered to explain this apparent instrumental helping behavior is that toddlers are motivated by a wish to address the recipient' need (Warneken & Tomasello, 2006, 2009). In other words, the *prosocial concern hypothesis* implies that genuinely prosocial motives are already operational in the second year of life. In support of this hypothesis, a line of research utilizing pupil dilation as a marker of a prosocial arousal has shown that toddlers' arousal increased when a third-party responded inappropriately to a needy individual, and their arousal decreased both when toddlers provided help themselves and when a third party alleviated the need (Hepach, Vaish, & Tomasello, 2012, 2016). Similarly, in an eye-tracking study, Köster, Ohmer, Nguyen, and Kärtner (2016) demonstrated that 9- to 18-month-olds expect the helper to help a needy individual, and not a second individual who has also initiated a goal-directed action but is not needy. Moreover, a study by Knudsen and Liszkowski (2013) showed that 1-year-olds warn an adult experimenter about the potential negative consequences of an action. These results appear to suggest that toddlers have a concern for the welfare of others.

However, others have proposed that apparent helping behavior at younger ages may be driven by other more basic motives. First, the *social-interactional hypothesis* stresses the role of socialization, and suggests that early helping stems from the motivation to interact with others and participate in their activities (e.g., Brownell, 2016; Carpendale, Kettner, & Audet, 2015). Consistent with this hypothesis, several studies have shown that family members often encourage helping from very early on, and that such encouragement is positively associated with toddler's helping (Dahl, 2015; Hammond & Carpendale, 2015).

Second, it is possible that apparent instrumental helping in toddlers is motivated by a preference for completing unfinished actions. The core idea behind this *goal completion hypothesis* is that the identification of an agent's goal leads toddlers to take up that goal as their own, and accordingly to be motivated to complete unfinished actions (Barresi & Moore, 1996; Paulus, 2014). Michael, Sebanz, and Knoblich (2016) have expressed this idea by suggesting that goals may have a tendency to slip from perception to action in the sense that, when an agent perceives another agent acting toward a goal, they may come to represent that goal in an agent-neutral fashion and to treat it as being equivalent to other goals that they have. This hypothesis would also explain the finding that infants complete actions begun by nonhuman agents (Kenward & Gredebäck, 2013). A preference for completing unfinished actions might have evolved to support social learning (Michael & Székely, 2017) and affiliation (Baumeister & O'Leary, 1995; Over, 2016), and may, if reinforced, provide a foundation for the development of genuinely prosocial motives.

While considerable research has been devoted to *prosocial concern* and *social-interactional hypotheses*, there has been little research investigating the *goal completion hypothesis*. However, goal completion is a topic of interest in cognitive science. For example, Aarts, Gollwitzer, and Hassin (2004) demonstrated that adults have a tendency to take up goals for themselves which they have attributed to others. In addition, in the classic "Zeigarnik effect," adults prefer to complete actions that they have begun than to leave those actions incomplete (Ovsianka, 1976). Similarly, Kivetz, Urminsky, and Zheng (2006) showed that adults are more motivated to achieve goals toward which some progress has already been made (by others) than to achieve goals toward which no progress has yet been made. There is a wealth of research probing adults' tendency to honor sunk costs (Thaler, 1980), even when the previous cost has been paid by another individual (Olivola, 2018). In the comparative literature, a considerable body of research going back to Hull (1932; 1934) supports the so-called goal-gradient hypothesis—that is, the hypothesis that an animals' motivation increases as the goal of an action is approached (for a review, see Heilizer, 1977). Developmentally, children infer goals from psychological agents but not from inanimate objects (Meltzoff, 1995). Taken together, this research indicates that a preference to finish uncompleted actions has an impact on many areas of behavior, and suggests that it may also be present in children, and could play a role in motivating their apparent helping behavior.

Thus, the present study tests whether goal completion plays a role in early helping. The children faced a scenario in which an adult experimenter initiates a sequence of actions directed toward a clear goal, but then abandons the goal and leaves the scene. Insofar as toddlers are motivated by a preference to complete unfinished actions, the experimenter's abandonment of the goal should not deter them from completing the action begun by the experimenter. In other words, they should complete the experimenter's action even though the experimenter no longer wants to reach the goal and accordingly does not need their help––that is, because they have taken the goal up as their own. Previous research has shown that children as young as 9 months old are able to understand that agents sometimes abandon goal-directed actions (Behne, Carpenter, Call, & Tomasello, 2005). To communicate this to children in the current study, we employed similar nonverbal and verbal means as in a recent study with a similar setup in which 2-year-olds were shown to understand goal abandonment (Green, Siposova, Kita, & Michael, 2021). In light of this previous research, as well as a study in which Hobbs and Spelke (2015) demonstrated that children younger than 24 months of age struggle to help appropriately when there are multiple possible goals, we determined that 24–30 months of age would be the ideal age to look at the appearance of goal completion. In the control condition, the experimenter also left the scene, but did so after reaching the finish line, that is, after having completed the goal. We reasoned that insofar as toddlers are motivated by a preference for completing unfinished actions, they should continue placing toys in the same container as the experimenter more often when the experimenter stops *prior* to reaching the red finish line (experimental condition) than when the experimenter stops *after* reaching the red finish line (control condition).

1. Method

The hypotheses, sample size, methods, exclusion criteria, and planned analyses were preregistered before data collection, and can be accessed at: http://aspredicted.org/blind.php?x=qz8dy6. All aspects of the study were carried out in accordance with the preregistered protocol unless otherwise stated.

1.1. Participants

In expectation of a small-to-medium effect, we preregistered a target sample size of 40 toddlers between 24 and 30 months of age. However, as the SARS-CoV-2 pandemic compelled us to close our lab in March 2020, we decided to declare data collection complete at that point with the current sample of 34 participants (16 females/18 males, average age: 26;17, range: 24;12–29;05). In addition, 10 more participants were tested, but excluded from final analysis according to preregistered drop-out criteria (see the *Coding and drop-out criteria* section below). All participants were recruited from a database of families in the Department of Psychology at the University of Warwick and from nurseries in the surrounding area. The majority of participants were White middle class.

1.2. Materials/apparatus

Participants sat on their caregiver's lap approximately 1.5 m away from the apparatus. There were four separate games, each of which was used once per participant per condition. For each game, there was a central workspace with three toys at the start of each trial, and three containers ("homes") into which the toys could be placed. The toys were either (game a) small round balls or small cubes with pictures of trees (game b), cars (game c), or trains (game d) affixed to them. The three containers were equidistant from the central workspace (Fig. 1). Each container could hold up to three toys. In the experimental condition, this limit was indicated by a red mark indicating the finish line (i.e., the goal). In the control condition, the red mark indicating the finish line was lower down on the container, such that it would be reached by placing two toys—that is, above the red finish line, there was a transparent extension of the container, making it possible to place a further toy. The rationale for the use of this transparent extension (i.e., as opposed to placing the red finishing line at a lower point on the container) was to ensure that filling the container itself would be perceived as a salient goal. The instruction for caregivers to give children ("You can put it in the home you want") was displayed on the apparatus as a reminder to caregivers (Fig. 1). The reason for this instruction was that we were not interested in whether or not children spontaneously took up the action the experimenter had begun, but in whether they picked up the experimenter's specific goal when taking up the action; by using this instruction to encourage them to take up the action, we hoped to increase the power to detect any differences between conditions.

1.3. Design

We used a within-subjects design, with the goal status as the independent variable: the goal left incomplete (the experimental condition) versus the goal completed (the control

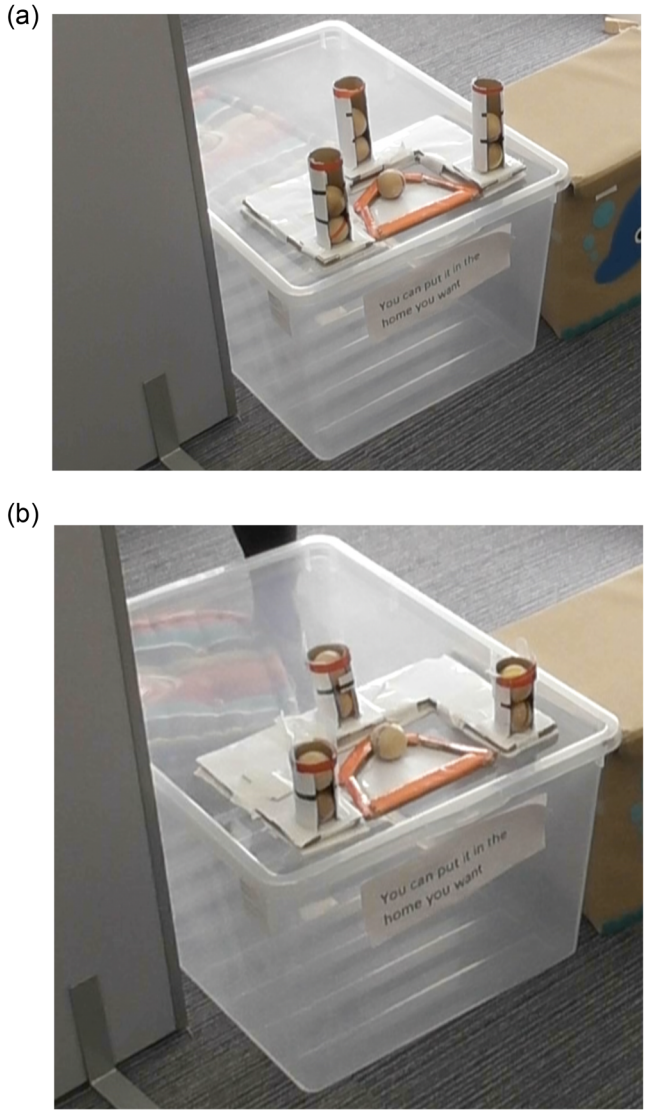

Fig. 1. (a) Sample game in the test condition, as seen from the child's perspective. The red finish line can be reached by placing three toys in the container. At the start of the test phase, all three containers have two balls in them. (b) Sample game in the control condition, as seen from the child's perspective. The red finish line can be reached by placing two toys in the container, but there is a transparent extension that makes it possible to place a third toy. At the start of the test phase, all three containers have two balls in them.

condition). The dependent variable was whether or not the child placed a toy in the tube in which the experimenter had been putting toys (there were three tubes). In contrast to *spontaneous* helping studies, children were encouraged to act on the toys. This is because we were not interested in whether or not children spontaneously took up the action the experimenter

had begun, but in whether they picked up the experimenter's specific goal when taking up the action. Participants performed eight test trials in total. To control for order effects of condition, the eight trials were split into two blocks of four trials each: an experimental block and a control block (counterbalanced). The location of the container the experimenter acted upon differed from one trial to the next this sequence was counterbalanced across participants (participant 1: left on the first trial, right on the second trial, center on the third trial, left on the fourth, etc.; for participant 2: right on the first trial, center on the third, left on the fourth, etc.).

1.4. Procedure

Participants were tested individually in the child lab at the university. Caregivers gave informed written consent, and participants received a gift for taking part. Sessions lasted approximately 20-min. The experiment was conducted in accordance with the Declaration of Helsinki, and was approved by the Humanities & Social Sciences Research Ethics Subcommittee at the University of Warwick.

Caregivers were present and played a largely passive role in test trials, with two exceptions: They were instructed to draw the participant's attention to the experimenter ("Look at what he is doing") if participants were not watching the experimenter, and to encourage shy participants to help without giving specific instructions as to which container to help place the toy in ("You can put it in the home you want").

During warm-up, participants were acquainted with the containers and toys, as well as helping to place the toys into the containers. After warm-up, caregivers were asked to sit on a chair with the participant on their lap, while the experimenter sat behind the apparatus.

1.5. Familiarization phase

There were eight familiarization trials, one for each of the four games used in each condition. Participants either experienced the four games with the apparatus used in the test condition and the same four games with the apparatus used in the control condition (order counterbalanced between participants). Participants were acquainted with helping the experimenter to place three toys in each of the containers. To facilitate understanding of the significance of the red finish line, the experimenter placed toys in the container until reaching the line, emphasized that the "home" (i.e., the container) was filled to the end when the toys reached the line, pointed to the line, and commented with excitement that, "Now it's full to the end, so I have done it!" Next, he asked the children to do it, and repeated the comments, gesture, and excitement when the line was reached. In the control condition, he additionally remarked that there was one object left and asked children to put it on top so that children would become familiar with placing toys into the transparent containers too.

1.6. Test phase

There were eight test trials in total (4 per condition). The number of times that E referred to each container, and the time E spent looking at each container, were kept constant in each test

trial, though the type of reference, gesture, tone of voice, and facial expression made toward each container differed depending on condition. Each test trial consisted of three phases: (1) goal establishment, (2) the experimenter's departure, and (3) participant helping.

1.6.1. Goal establishment

At the beginning of each trial, in both conditions, there were three toys in the central workspace. Two of the three containers already contained two toys each, and a third container contained no toys. The experimenter, referring to containers as "homes," used gesture and verbal reference to indicate his goal: "I want to fill this home up to the end [pointing to the red finish line] with these toys [pointing at the toys]." Next, the experimenter placed two toys in the container, saying "One…two…."

1.6.2. The experimenter's departure

In the experimental condition, the experimenter then grasped the third toy and began to move it toward the container, but then stopped and said, "No, I won't do it. I do not want this ball [or 'car', 'train' or 'tree'] in this home anymore." He also shook his head to communicate this nonverbally. The experimenter then stood up and went behind a barrier, providing the participant with an opportunity to act upon the toys, and only returned after the participant helping phase (see below). In the control condition, when the experimenter placed the second toy in the container, he said, "I've done it!" He then grasped a third toy, began to move it toward the container, but then stopped, saying, "I do not want this ball in this home." Then, he continued as in the experimental condition. Thus, in both conditions, the experimenter explicitly stated that he did not want the last toy placed in the container in which he had been placing toys. He also communicated this nonverbally, by shaking his head and leaving the scene as if he did not care about the toys anymore. The only procedural difference between the two conditions was that in the control condition, the experimenter stated that he had completed his goal after having placed two toys and exhibited positive emotion about it. Crucially, in the experimental condition, the two toys that the experimenter had placed did not reach the red finish line (as the line was located higher on the tube, Fig. 1a); therefore, the original goal had not been achieved when the Experimenter announced that he was abandoning the goal and left. In contrast, in the control condition, the two toys had reached the red finish line (as the line was located lower on the tube, Fig. 1b); the original goal was indeed achieved when the experimenter said, "I've done it."

1.6.3. Participant helping

If the participant did not initiate a placing action, the caregiver gave the following prompt: "You can put it in the home you want." When the participant placed a toy in a container, irrespective of which container, the phase ended. When the experimenter returned, he said, "Well done." The caregiver then took the participant up into their lap, and the next trial commenced.

1.7. Coding and drop-out criteria

For each trial, we coded whether participants placed the toy at any one of the three locations, and if so, whether they placed it at the target location. All sessions were recorded using digital video recorders. Coding was carried out by a naïve research assistant. Coders assessed: placement behavior (yes or no), placement at same location as the experimenter (yes or no), and exclusion (whether individual trials should be dropped from analysis, for any of the reasons listed below).

A second naïve research assistant coded a random 10 participants (29.4%) for reliability. Using the *Kappa.test* function of the *R* package *fmsb* (Nakazawa & Nakazawa 2019), coders were found to be in substantial agreement in judging whether the participant placed the toy anywhere at all (judgments matched 93% of the time, $\kappa = 0.78$ (95% CI: 0.60, 0.95), $p < .001$), whether participants placed the toy in the same location as the experimenter (judgments matched 90% of the time, $\kappa = 0.80$ (95% CI: 0.66, 0.93), $p < .001$), and whether to drop individual trials (judgments matched 90% of the time, $\kappa = 0.73$ (95% CI: 0.56, 0.91), $p < .001$). Interrater reliability was reduced by trials that were problematic (i.e., excluded in the main analysis but mis-coded by the second observer) such as the child not paying attention while the experimenter established a goal, parents interfering (pointing or gesturing toward the task) or parents giving a prompt too late.

1.8. Participant exclusions

We excluded 10 participants who did not complete at least two trials in each condition due to fussiness (3), or taking too long to place the toy at any location on more than two trials in at least one of the two conditions (7).

1.9. Trial exclusions

Out of 272 trials, we excluded 44 trials according to the following preregistered criteria:

(a) Participant did not place the toy in one of the containers for 10 s after the caregiver gave a prompt: 38 trials.
(b) Experimenter error (i.e., forgetting or mixing up relevant aspects of the protocol): 0 trials.
(c) Caregiver instructed children as to where the participant should place the toy: 5 trials.
(d) If the participant was not watching the experimenter when he established his goal or during the experimental manipulation: 1 trial.

2. Results

2.1. Data screening

Of the 34 participants included in our analysis, 44 test trials were excluded (see above), leaving 228 test trials for further analysis (118 in the experimental condition). All subsequent analysis was conducted in *R* (R Development Core Team, 2018). The data and

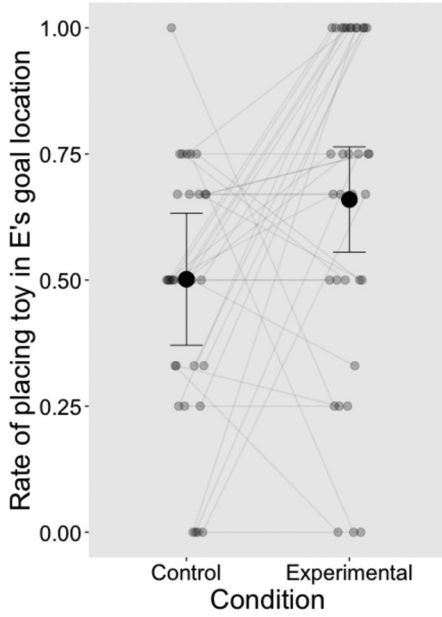

Fig. 2. The proportion of trials on which participants placed the toy in E's goal location, with 95% confidence intervals of the means adjusted for within-subject design (Cousineau, 2005; Loftus & Masson, 1994; Morey, 2008). Jittered dots represent individual performances in each block, with light gray lines connecting each participant's performance across conditions.

R code can be accessed at Open Science Framework: https://osf.io/unrzy/?view_only = 8c96e180b574409fb1ad43d446e0898a.

2.2. *Primary analysis: Placement of toy at same location as experimenter between conditions*

To investigate whether participants differentiated between the experimental and control conditions, in a preregistered analysis, we measured whether children placed the toy in the same container as the experimenter or in one of the other containers. Children placed the toy in the same container as the experimenter in 67% of experimental test trials and in 49% of control test trials (Fig. 2).

To test whether condition had an effect on participants' placement location, we used the function *mixed* of the *R* package *afex* (Singmann, Bolker, Westfall, Aust, & Ben-Shachar, 2020) to create a generalized linear mixed model (GLMM) with a binomial error structure. Our dependent variable was whether participants placed the toy in the same location as the experimenter or not (binary). Condition (experimental vs. control) was the only fixed effect. Our random effects included the random intercept of participant and trial number. We initially included the random slope of participant and trial number, but we removed these terms

because of singularity in the model (Barr, Levy, Scheepers, & Tily, 2013; Bates, Maechler, Bolker, & Walker, 2015; Singmann & Kellen, 2019).

The full model was compared to a model that was identical except that the fixed effect was removed. The results indicated that the full model was a better fit for the data as compared to the null model, $\chi^2(1) = 8.95$, $p = .003$. The odds of participants placing the toy in the same container as the experimenter were over two times larger ($OR = 2.37$, $estimate \pm SE = 0.86 \pm 0.29$, $p = .003$) in experimental test trials than in control test trials, indicating a small-to-medium effect size.

2.3. Exploratory analyses

2.3.1. Placement of toy at same location as experimenter compared to chance

Although participants were significantly more likely to place the toy at the same location as the experimenter in the experimental condition than in the control condition (consistently with the goal completion hypothesis), this pattern could also have been produced if the children were confused in the control condition, or specifically avoided that location in the control condition.

To rule out these possibilities, in an exploratory analysis, we ran Wilcoxon signed rank tests for each condition, comparing placements at the same location as the experimenter to chance (0.33). For the experimental condition, the results showed a significant difference from chance, $V = 553$, $p < .001$. For the control condition, the results also showed a significant difference from chance, $V = 491$, $p < .001$.

2.3.2. Placement of toy at any location

As a manipulation check to probe whether there were any differences in the physical affordances of the containers between the two conditions—in particular, whether participants found it more enticing to place toys in any container at all in the experimental condition than in the control condition—we measured whether participants placed the toy in a container (i.e., in any container) or not on each test trial. Children placed the toy in a container in 92% of the experimental test trials and in 88% of the control test trials. For this analysis, we included trials in which children did not place the toy at any location. These percentages are, therefore, out of a total of 136 test trials per condition.

To test whether condition had an effect on placement, we ran the same analysis as in Section 3.2 (with an identical GLMM), except that our dependent variable was whether participants placed the toy anywhere or not (binary). The results indicated that the full model was not a significantly better fit for the data as compared to the null model, $\chi^2(1) = 1.63$, $p = .201$, that is, we found no evidence that condition significantly predicted whether participants placed a toy anywhere at all or not.

3. Discussion

The results showed that 24- to 30-month-old toddlers resumed the experimenter's action more often when the experimenter had stopped placing toys in the container prior to reaching

the finish line, leaving the goal incomplete (experimental condition), than when he did so after reaching the finish line, having completed the goal (control condition). This confirms our prediction, providing support for the hypothesis that toddlers' apparent helping behavior is motivated at least in part by a preference to complete others' unfinished goal-directed actions. Crucially, if children had been motivated to help purely based on a prosocial concern for the welfare of the potential recipient of help, they should have behaved the same in both conditions. Indeed, given that the experimenter abandoned and disavowed his goal in both conditions, the *prosocial concern hypothesis* does not provide any reason to predict that the children would choose one location over other locations when placing the toy. The *social-interactional hypothesis* cannot explain the difference in children's placement location, as the desire to interact with the experimenter and participate in the activity seems to have been equally strong in the two conditions: children placed a toy in one of the containers at comparable rates (around 90%) in each condition.

It is also important to emphasize that, although the experimenter filled the container up to the finish line in the control condition, but not in the experimental condition, the containers were designed to ensure that it was equally feasible in both conditions for toddlers to place one more toy in the same container as the experimenter. And indeed, the fact that children were equally likely to place a toy somewhere in both conditions confirms that the containers afforded placing behavior equally in both conditions. This means that our results cannot be explained by any differences in the physical affordances of the containers between the two conditions.

Thus, our findings provide support for the hypothesis that a preference for completing unfinished actions plays a role in toddler's helping behavior (Barresi & Moore, 1996; Paulus, 2014; Michael et al., 2016). Indeed, the goal-completion hypothesis also offers an elegant explanation of the observation that infants complete actions begun by nonhuman agents (Kenward & Gredebäck, 2013)—an observation which appears puzzling from the perspective of the prosocial concern hypothesis. More broadly, our findings link research on young children's helping behavior with other areas of research, reviewed above, related to goal completion in adults (Aarts et al., 2004; Kivetz et al., 2006; Olivola, 2018; Ovsianka, 1976; Thaler, 1980), and in nonhuman animals (Heilizer, 1977; Hull, 1932; 1934).

This is not the first study to test whether instrumental helping is driven by basic motives other than prosocial concern. Previous studies have investigated, for example, to what extent children may be motivated by a wish to restore the order of things (Hepach, Vaish, Grossmann, & Tomasello, 2016; 2017; Köster et al., 2016). In one such scenario, two objects fell on the floor. The experimenter needed one of the items (piece of paper or cloth) based on the activity he had been engaged with. Picking up both types of objects (relevant and irrelevant) would restore the previous order of things. The main finding was that children were more likely to hand over the relevant than the irrelevant objects, suggesting that children were not motivated to restore the order of things but instead, as proposed by the authors, to address the need of the experimenter (Hepach et al., 2016). However, one of the items needed by the experimenter was more salient than the others. Importantly, goal-completion differs from restoring the order of things, as in goal-completion, the helper identifies the helpee's goal

and takes up that goal as their own. So, in the aforementioned scenario, the *goal-completion hypothesis* would generate the same prediction as the *prosocial concern hypothesis*—that is, the children are more likely to hand over goal-relevant objects. Thus, the current study is the first to directly test the goal completion hypothesis in a scenario in which it generates a prediction that the prosocial concern hypothesis does not also generate.

Of course, it must be emphasized that the prosocial concern hypothesis is not inconsistent with our findings; it simply does not provide any reason to predict that children would complete the experimenter's goal in this scenario. In view of this, the current research does not by any means preclude the possibility that prosocial concern also plays a role in helping contexts. Instead, our findings raise more nuanced questions about how different underlying motives support helping behaviors over the course of development. We propose that the preference for completing others' goals bootstraps the early development of prosocial helping in children. More specifically, early goal completion behavior is reinforced by praise, attention, and reciprocal prosocial behavior from adults (who mistakenly interpret it as altruism) (for a similar view, see Dahl & Paulus, 2019). In addition, this behavior is supported by benefits arising from social learning, as it leads children to engage with new activities and to experience successfully completing new goals. Finally, children come to understand and value the positive consequences that this behavior has for others. It is the confluence of these heterogeneous lines of cognitive development, not the maturation of an innate disposition, which leads to prosocial concern and to genuinely prosocial helping (Dahl et al., 2017). If this is correct, we should expect that a tendency to complete unfinished goals in younger children (e.g., 18 or 24 months) predicts costly prosocial helping at subsequent ages (e.g., 36 months), which would be an interesting topic for future research. Similarly, an open question for future research remains how multiple motives develop in different cultures, as cross-cultural research has shown that both socialization and conceptualization of helping behavior differ between cultural contexts (Köster & Kärtner, 2019).

In sum, the current research extends our understanding of the motivational underpinnings of early helping behavior by providing evidence that toddlers' helping response is modulated by a preference for completing unfinished actions. It is thus possible that prosocial behavior in humans arises from more basic motives, which are not inherently prosocial. This is an important contribution to illuminating how human cooperation emerged in evolution and what basic psychological mechanisms sustain it today. To build upon our findings, it would be important for future theoretical and experimental research to explore how a preference for completing unfinished goals may provide a foundation for the development of genuinely prosocial motives.

4. Supplementary Material

The preregistration is available at: http://aspredicted.org/blind.php?x=qz8dy6

The data and R code are available at: https://osf.io/unrzy/?view_only=8c96e180b574409fb1ad43d446e0898a

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Conflict of interests

The authors declared that they had no conflict of interests with respect to their authorship or the publication of this article.

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Supplementary material