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## Competence-based helping: Children's consideration of need when providing others with help

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### ABSTRACT

When and how other people's needs influence children's helping is poorly understood. Here we focused on whether children use information about other people's competence in their helping. In Study 1 ( $N = 128$  4- to 8-year-old children), children could provide help to both an incompetent target and a competent target by pushing levers. Whereas older children helped incompetent targets more than competent targets, younger children ( $<5$  years) helped both targets equally. Two further experiments ( $N = 20$  and  $N = 28$ ) revealed that 4-year-olds understood that the incompetent person needed more help and also understood how they could help. Thus, young children do not, like older children, give more help to those who need it the most. We discuss potential developmental changes toward competence-based helping.

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### Introduction

Children are helpful from a young age onward, but they cannot possibly help everyone in their environment. How do children decide whom to help? One way to decide how to allocate effort would be to think about people's needs. Whether children help based on other people's needs, however, has been studied in a restricted set of circumstances and age ranges (for overviews, see [Dahl & Paulus, 2019](#); [Köster & Kärtner, 2019](#); [Warneken, 2018](#)). As such, how children of diverse ages act on

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someone's need for help is poorly understood. However, insight into the role of need in children's helping is fundamental to understanding whether and when children help others because they want to alleviate their need (e.g., Hepach, Vaish, & Tomasello, 2012; Warneken, 2015) and whether and when they help for other reasons such as because they enjoy interacting with other people (e.g., Paulus, 2014b). Using a novel task and a new context in which a need for help can arise (i.e., based on incompetence), the current research investigated how a target's need for help influences children's helping across a wide age range (4–8 years).

### *Children's need-based helping behavior*

Children's prosocial behavior has received a tremendous amount of research attention over the past decades (see Davidov, Vaish, Knafo-Noam, & Hastings, 2016). A large body of research reveals that children start providing instrumental help during the second year of life (see Dahl & Paulus, 2019, and Warneken, 2018, for reviews). Furthermore, children sometimes go as far as to motivate other people to provide instrumental help when children are unable to provide help themselves (Karasewich, Kuhlmeier, Beier, & Dunfield, 2019; Paulus, Jung, O'Driscoll, & Moore, 2017).

Many studies of children's helping have focused on whether very young children (i.e., 1 or 2 years) provide instrumental help to others based on need. Such studies usually present children with a simple helping context in which the need for help arises from situational cues in the moment. For example, a common procedure is to present children with a situation in which someone accidentally drops an object and is trying to reach for it (e.g., Dunfield, Kuhlmeier, O'Connell, & Kelley, 2011; Hepach, Kante, & Tomasello, 2017; Warneken & Tomasello, 2006, 2007). This situation is contrasted with control conditions in which an object is dropped on purpose with no one reaching for it. Typically, such studies show that children will not help others absent need (e.g., when someone does not show interest in obtaining the object by throwing it out and leaving it) and thus suggest that before 2 years of age children are sensitive to the presence of situational need (e.g., Dunfield et al., 2011; Hepach et al., 2017; Newton, Goodman, & Thompson, 2014; Warneken & Tomasello, 2006). Somewhat older children also help those who express need and even engage in paternalistic helping. For example, when an adult asked for an object to attain a certain goal, 3-year-old children picked the object that could fulfill the adult's need and not the one that did not fulfill the need (e.g., a functional cup but not a dysfunctional cup when the adult wanted to drink; Martin & Olson, 2013).

Need-based helping behavior on the part of children aged 3 years and older has received less attention in the literature. However, one recent study (Paulus, 2020) examined whether younger children (1.5 years) and older children (3.5 years) provide instrumental help based on need. In the study, two experimenters expressed interest in obtaining certain materials (e.g., looking at and reaching for drumsticks), but only one of them was actually in need of the materials to reach the goal (e.g., to play the xylophone). Across several experimental helping tasks, results showed that only the 3.5-year-old children helped a needy person more than a non-needy person. As such, the study suggested that when recipients of help show similar interest in obtaining objects, young children's helping is no longer sensitive to differences in need.

A similar developmental trend is shown for children's sharing behavior; at around 4 or 5 years of age, but not at younger ages, children will share more resources with a target who is in need of resources compared with one who is not needy (e.g., Malti et al., 2016; Paulus, 2014a; Sigelman & Waitzman, 1991). For example, when children were asked to share resources with a poor or rich character, 5-year-olds, but not 3-year-olds, shared more with the poor recipient than with the wealthy recipient (Paulus, 2014a). Similarly, before 5 years of age, children also do not oppose unequal distributions between a poor puppet and a wealthy puppet (Wörle & Paulus, 2018). Research on sharing thus suggests that at around 4 or 5 years of age children share selectively and give more to those with a greater need for resources.

### *Theoretical accounts for children's helping behavior*

A prominent account for children's early helping behaviors is that their helping is driven by an intrinsic other-oriented motivation (e.g., Hepach et al., 2012; Warneken, 2018). Such a perspective

is often embedded in research that focuses on understanding the evolutionary roots of prosocial behavior and argues that “children’s early helping behaviors are altruistically motivated, i.e., aimed at creating a benefit for others rather than a benefit for the self” (Warneken, 2018). Evidence for the idea that children have an intrinsic other-oriented motivation to help comes from studies showing that during the second year of life children will help others spontaneously (i.e., without direct requests for help; Warneken & Tomasello, 2006, 2007) and will even provide help when doing so is costly to them (e.g., Warneken, Hare, Melis, Hanus, & Tomasello, 2007). Other studies show that when another person is in need of help, 2-year-old children’s pupils dilate, suggesting an increase in arousal; pupil dilation decreases when the target person receives help (Hepach et al., 2012; but see Pletti, Scheel, & Paulus, 2017).

Although this other-oriented perspective on children’s helping is a prominent account of why children help, it is not without criticism. Some have argued that young children’s helping behaviors might derive from social functions, such as children’s motivation to spend time with others and affiliate (e.g., Carpendale, Kettner, & Audet, 2015; Dahl, 2015; Over, 2016; Paulus, 2018; Wynn, 2009), rather than from a desire to alleviate need. Scholars arguing for such a motivation often point to the developmental differences described above (i.e., Paulus, 2020) and the fact that young children derive pleasure from joint activities such as helping their parents with housework (Dahl, 2015; Rheingold, 1982). Moreover, priming infants with social affiliation cues increases their helping (Over & Carpenter, 2009), and increasing the salience of joint commitment prior to the assessment of helping strongly increases helping in children (Barragan & Dweck, 2014).

The social affiliation perspective suggests that children will not necessarily help those who need it more but rather will help those who they like or admire. Indeed, young children often prefer higher-status others (e.g., Horwitz, Shutts, & Olson, 2014; Li, Spitzer, & Olson, 2013; Shutts, Brey, Dornbusch, Slywotzky, & Olson, 2016) and competent others (e.g., Brosseau-Liard & Birch, 2010; Cain, Heyman, & Walker, 1997; Jara-Ettinger, Tenenbaum, & Schulz, 2015; Lane, Wellman, & Gelman, 2013). Moreover, competence and status information can also influence children’s prosocial behavior; in one study, infants were more likely to pick up a dropped object for an experimenter who previously labeled objects correctly as compared with an experimenter who used inaccurate or nonsense labels (Horton, Enright, & Sommerville, 2021; but see Brooker & Poulin-Dubois, 2013). Moreover, in other studies, 3- to 6-year-old children chose to teach a knowledgeable person more often than someone who was actually in need of information (Kim, Kalish, Weisman, Johnson, & Shutts, 2016) and also shared more resources with a rich friend than with a poor nonfriend (Paulus, 2016). These findings suggest that children sometimes disregard need when making prosocial decisions.

#### *A novel context to examine need: Competence-based helping*

To delve deeper into the extent to which differences in need guide children’s helping, and to broaden the context and age range in which these issues are explored, we designed a new helping task. In the task, a person’s need for help could be inferred from a person’s competence. We chose to focus on competence because this personal characteristic is arguably most closely linked to need because it often determines whether someone can or cannot successfully reach a goal by himself or herself. Differences in competence are also highly familiar to children (who are often in the position of being less competent than much of the population). As such, incompetence is an ecologically valid cue for children. At the same time, this type of need (i.e., incompetence) differs from the type of need that has been studied previously because it arises from trait information about the person rather than situational cues. Examining how a recipient’s competence influences children’s helping therefore allows us to understand further what types of information children use to guide who and how much they help and to what extent children’s helping is focused on alleviating other people’s needs beyond providing instrumental help or sharing resources.

Research focused on trust and testimony provides evidence that young children detect and use competency information across a range of tasks. For example, infants are more likely to follow the gaze of someone who was previously reliable in his or her looking behavior than of someone who was not (Chow, Poulin-Dubois, & Lewis, 2008). By 4 years of age, children can determine how competent someone is by tracking that person’s errors (Pasquini, Corriveau, Koenig, & Harris, 2007), and they

infer that someone who has trouble solving a puzzle is less smart than someone who does not have trouble (Heyman, Gee, & Giles, 2003). Furthermore, children think of competence as stable over time and predictive of how someone will behave (Corriveau & Harris, 2009; Yang & Frye, 2016). One study, for example, showed that information about a person's competence influenced 3- and 4-year-old children's trust in that person's testimony a week later (Corriveau & Harris, 2009), suggesting that competency information can have an enduring impact. As early as 3 or 4 years of age, children thus have a rich understanding of competence and assume that it is important for predicting how people behave in the moment as well as in the future.

However, to our knowledge, only one study has focused on children's consideration of competence in a helping context. In this study, older children (10–12 years) were given the opportunity to help ethnic in-group or out-group children solve a word game. When participants thought that the out-group child was less smart, participants provided more help to that child (Sierksma, Lansu, Karremans, & Bijlstra, 2018).

### *The current research*

In the current research, we introduced children to two recipients who were said to be competent or less competent in one of two domains: solving puzzles (smart vs. not so smart) or shooting balls into hoops (i.e., sporty vs. not so sporty). In order not to conflate a need for help with a request for help (see also Paulus, 2018, 2020), neither target requested help. We studied children aged 4–8 years because it is clear that from 4 years onward children understand what it means to be competent or incompetent (Heyman et al., 2003; Pasquini et al., 2007). Furthermore, there is already evidence that older children (~10 years) base their helping on competency information (Sierksma et al., 2018). The literature suggested competing hypotheses; children might help an incompetent peer more than a competent peer because an incompetent peer needs more help (e.g., Hepach et al., 2012; Warneken, 2018) or, alternatively and in line with social affiliation considerations (e.g., Carpendale et al., 2015; Dahl, 2015; Over, 2016; Paulus, 2018; Wynn, 2009), children might help a competent peer more than an incompetent peer. We also explored the role of age in children's use of competency information to guide their helping.

## **Study 1**

### *Method*

#### *Participants*

Children were recruited from a laboratory database in a medium-sized city in the midwestern region of the United States. We followed Cohen (1992) guidelines to have an 80% chance to detect a medium effect size at an alpha level of .05 and therefore needed 64 per between-participants cell. As such, we aimed to collect data for 128 children (64 per domain of helping). An additional 24 children participated but were excluded because there was a video-recording error ( $n = 8$ ), participants failed the memory check ( $n = 7$ ), the experimenter failed to ask the memory check ( $n = 6$ ), the participant had the same name as the recipient of help ( $n = 1$ ), the participant did not want to participate ( $n = 1$ ), or the participant was unable to understand English ( $n = 1$ ). Children in the final sample were 4 to 8 years of age ( $M = 76.88$  months,  $SD = 17.18$ ; 28 4-year-olds, 24 5-year-olds, 23 6-year-olds, 26 7-year-olds, and 27 8-year-olds; 66 girls and 62 boys). Moreover, they were predominantly White (85.7% White, 7.2% Hispanic or Latino, 1.6% Black, and 0.8% Asian [4.8% did not report on racial group]).

All studies reported were preregistered on the Open Science Framework (OSF), and data for all studies can be viewed there as well (Study 1: [https://osf.io/mzfbp/?view\\_only=55a8264ff50e436bbaaefd3a2c023da](https://osf.io/mzfbp/?view_only=55a8264ff50e436bbaaefd3a2c023da) and [https://osf.io/g7wkn/?view\\_only=95cc00d85443476894da6f116aec73cd](https://osf.io/g7wkn/?view_only=95cc00d85443476894da6f116aec73cd); Study 2: [https://osf.io/52ens/?view\\_only=6a3dd784cf64440881c910116bc5f98d](https://osf.io/52ens/?view_only=6a3dd784cf64440881c910116bc5f98d); Study 3: [https://osf.io/uqv6g/?view\\_only=a565fed168fd46cba2a687cd6bf649c2](https://osf.io/uqv6g/?view_only=a565fed168fd46cba2a687cd6bf649c2); data and R-code: [https://osf.io/7qezb/?view\\_only=386f3f62b7294d69af870b7988cc2e7d](https://osf.io/7qezb/?view_only=386f3f62b7294d69af870b7988cc2e7d)). In addition, all studies were approved by the ethical board of the university where the research was conducted.

### Overview

Children were first told about two rooms in which people were doing a puzzle (smart condition) or shooting balls into a hoop (sports condition). They then learned that they could help the people in these two rooms by pushing a lever, and they practiced pushing each lever (see Fig. 1). Next, children were introduced to the two targets who “were in the rooms” and were given information about them that implied one of them was more competent than the other. Subsequently, children were given the opportunity to help these targets by pushing the levers as much and for as long as they wanted. Afterward, children were asked whether they remembered who was in which room and why they chose to help or not help.

### Materials

*Helping behavior.* Two levers were constructed for the study (see Fig. 1). When levers were pushed all the way down, they made a beeping sound. This was done to make helping concrete; children were told that with each beep they helped a little more. The levers were somewhat hard to push (because



**Fig. 1.** Setup of experiment.

we wanted children to feel like they were putting in effort), but piloting revealed that 4- to 8-year-old children were capable of the pushing action.

*Recipient of help.* Recipients of help were White, gender-matched to the participants, and depicted with photographs taken from the Child Affective Facial Expression (CAFE) set (LoBue & Thrasher, 2015). Children in the photos looked happy, and two photos of girls (for female participants) and two photos of boys (for male participants) were used.

#### *Procedure and design*

The study was a 2 (Recipient of Help: competent vs. not competent; within participants)  $\times$  2 (Domain of Helping: sports vs. puzzle; between participants) design. We chose to study children's helping with regard to sports and puzzles to ensure that results were not specific to a single domain of help. Participants were randomly assigned to either the puzzle or sports condition. Moreover, we counterbalanced across participants whether the competent target was on the left or right side of the room as well as the pairings of target names with competence and incompetence (James and John for male participants; Liz and Ann for female participants). Testing took place in a university laboratory room, was video-recorded, and lasted approximately 10 min. On entering the laboratory, children were seated in a chair in front of two tables. Each table had a lever fixated on it and a monitor placed above it.

*Learning phase.* Children were told, "We are going to work with these levers over here. Now these levers are pretty special because they are connected to rooms here in the building. And I will show you because we have cameras up there, so you can see the rooms!" Subsequently, the experimenter turned on the two monitors; each monitor revealed a picture of a room with a puzzle table (puzzle condition) or a hoop (sports condition). Only the background color of the pictures on the monitors differed (in order suggest that children were viewing different rooms). While turning on the monitors, the experimenter pointed out that someone was going to solve a puzzle or play basketball in the rooms (depending on condition). To keep children attentive, she also asked whether they ever solved puzzles or knew basketball. Then she pointed out that the puzzle was pretty hard and not easy to solve or that the hoop was pretty far away and thus it was not easy to get the ball into the hoop.

Next, the experimenter said, "Because the puzzles are pretty hard [it's hard to get the ball into the hoop], you get to help the people in the rooms. And I will show you how it is done. Now this lever over here [left] is connected to this room [pointing to the screen]. If you push this lever, you help the people in that room." She then showed children twice how to push the lever and told them, "So you push it until you hear the beep and then all the way back to stop, and that's how you help! And it's really important to push it all the way back to the stop, otherwise it does not work. Okay?" She then walked over to the lever on the right and explained it in the same way. Children practiced pushing the lever on each table twice, always starting on the left side. They were corrected if they did not push the lever until it beeped or did not pull the lever back all the way to the stop.

After children practiced, the experimenter told children that they were now going to wait for the people to come into the room. She walked to a table behind the children and asked them whether they already saw someone to make sure that they were looking at the screens. Unbeknownst to participants, she pressed a pointer (behind her back) to make the screens look like they were crashing; the images started to scramble and fade and then both screens turned black. She said, "Oh no! I think the computers are broken! Oh no! Now this sometimes happens because the computers are pretty old. Let me see if I can fix it." She pretended to try to fix the computers on the back and asked children whether they worked again. When this was unsuccessful, she looked a little worried and said, "Well, this means we cannot see the people in the room. Hhhmmmmmm. Well, at least the levers still work, so you can still help them, right? And maybe I have their files on my computer! Let me have a look." She then ostensibly searched on her laptop and finally said she found their files (i.e., pictures of the children).

*Manipulation.* Children were shown a picture of a gender-matched target and the experimenter told them, "This child is in that room [pointing left]. Let's listen to what we know about this child." An

audio file then played. The experimenter then repeated that the described target was in the room and put a picture of the target in front of the monitor. Subsequently, this process was repeated for the target in the other room. The description of the targets can be seen in Table 1. After introducing the targets, the experimenter then reminded participants who they were helping when pushing the left and right levers.

*Instruction to help.* Lastly, the experimenter told children, “Now, you can decide what you want to do. So, you can decide for yourself if you want to help and how long you want to help. And you can decide for yourself if you want to help [name of left target], [name of right target], or both of them. I will go sit over there and do some work. And when you’re done, you can just come and get me. Then we will do something else and [names of targets] are going home. Okay? Just come and get me when you’re done!” The experimenter then sat in the corner of the room behind a curtain so that children could not see her. The helping phase ended when participants approached the experimenter and said they were done or after 7 min (whichever came first).

Note that we took several steps in our research design to reduce demand and children’s concerns about social desirability. In doing so, we also aimed to improve previous research in which children’s helping was predominantly studied (a) toward adult recipients, (b) when experimenters were watching, and (c) without providing explicit guidance to children that any course of action was acceptable. First, instead of introducing adult recipients of help, we chose to focus on children’s helping behavior toward same-age targets; doing so minimizes demand that emerges from adult–child interactions where there are clear status and authority differences. Second, the experimenter was not visible to children during the crucial part of the experiment in which children could help by pushing levers; rather, the experimenter was sitting behind a curtain. Third, we ensured that children knew that any action after the experimenter left was acceptable; the experimenter emphasized that children could decide for themselves (a) if they wanted to help, (b) who they wanted to help, and (c) how long they wanted to help.

*Memory check.* When children finished pushing the lever, they were asked, “So, do you remember [name of left target child]? Was he or she good at sports or puzzles or not so good at sports or puzzles? How about [name of right target child]? Was he or she good at sports or puzzles or not so good at sports or puzzles?”

*Justification.* To explore children’s reasons for helping, children were also asked, “So, who did you decide to help: [name of left target child], [name of right target child], or both?” followed by “And why did you decide to do that?”

Coding

Children’s helping was measured by tabulating the number of times and the amount of time children spent pushing levers. One research assistant coded the number of pushes, the number of

**Table 1**  
Overview of descriptions of the recipients of help.

Domain	Description
Puzzle competent	This is Liz. Liz is smart. This means that she does really well at school. So, when the teacher asks her questions, she always gives the right answer. And when anybody else asks something, she also knows the right answer. And she is also really good at solving puzzles.
Puzzle incompetent	This is Ann. Ann is not so smart. This means that she does not do so well at school. So, when the teacher asks her questions, she almost never gives the right answer. And when anybody else asks something, she also never knows the right answer. And she also has trouble solving puzzles.
Sports competent	This is Liz. Liz is sporty. This means that she is really good at sports. She can run really fast. And she is really strong. She is also really good at getting balls into hoops.
Sports incompetent	This is Ann. Ann is not so sporty. This means that she is not really good at sports. She cannot run very fast. And she is not very strong. She also has trouble getting balls into hoops.

Note. In the version for boys, recipients of help were named James and John.

incomplete pushes (i.e., lever was not pushed back entirely or lever did not beep), the time children spent pushing each lever, and the total time they spent helping. A second research assistant coded 25% of the videos again. Both coders were unaware of which lever was linked to the competent versus incompetent target. Coders' agreement was strong for the number of times children pushed the lever as instructed ( $r = .97, p < .001$ ), the total number of pushes including incomplete pushes ( $r = .97, p < .001$ ), the time children spent pushing the levers ( $r = .87, p < .001$ ), and the total time helped ( $r = .99, p < .001$ ).

Analyses

Preregistered linear mixed-effects models were specified for each dependent variable (i.e., number of correct pushes and time spent helping) in R using the package lme4 (Bates, Maechler, Bolker, & Walker, 2015). All models included a contrast for competence of the recipient of help (competent coded 1, incompetent coded  $-1$ ), children's age in months (continuous variable), and an interaction for age and competence of the recipient of help. All continuous measures were standardized. Random slopes were specified for the intercept and competence of the recipient of help. In addition, for each model we examined differences between domains by testing an interaction for competence of the recipient of help and the domain of helping (sports vs. puzzle). As preregistered, for the number of pushes, the primary dependent variable was the number of times children pushed the lever as instructed (i.e., until it beeped and back to the stop). In addition, we ran an exploratory linear mixed-effects model with the total number of pushes (i.e., including incomplete pushes) as the dependent variable.

Results

Descriptives

Descriptives for all children are reported in Table 2. In total, 6 children did not help at all, 7 children helped for the full 7 min, and all other children did at least some helping. Across all children, the average time spent helping was 2.76 min ( $SD = 2.01$ ).

Preregistered analyses

*Preliminary analyses.* As preregistered, we first examined whether children's helping differed according to domain of helping (sports vs. puzzles). Results showed that there was no main effect or interaction with competence of the recipient of help for the number of pushes as instructed ( $\beta = -.01, p = .86$ , and  $\beta = .03, p = .48$ , respectively), the total number of pushes ( $\beta = .01, p = .94$ , and  $\beta = .03, p = .44$ , respectively), or time spent helping ( $\beta = -.04, p = .59$ , and  $\beta = .06, p = .27$ , respectively). Domain of helping therefore was not included in the models presented below.

*Number of pushes as instructed.* One outlier was identified for the number of pushes (outlier labeling rule; Hoaglin & Iglewicz, 1987) and, as preregistered, this case was removed in order to adhere to the assumptions of the analysis (results were the same when this outlier was included). A main effect was found for competence of the recipient of help ( $\beta = -.13, p = .003$ ). In addition, although children's age did not result in a main effect, there was a significant interaction for age and competence ( $\beta = -.09, p = .03$ ). Simple slope analyses showed that older children (1  $SD$  above the mean) helped the incompetent target more than the competent target ( $\beta = -.22, p < .001$ ). In contrast, younger children (1  $SD$  below the mean) helped the competent and incompetent targets equally ( $\beta = -.04, p = .54$ ) (see

Table 2  
Descriptives for Study 1.

	Range	Mean	Standard deviation
Help: Pushes as instructed	0–130	17.58	22.93
Help: Incomplete pushes	0–41	1.09	4.47
Help: Total pushes	0–130	18.66	23.46
Time spent (s)	0–420	53.31	62.64

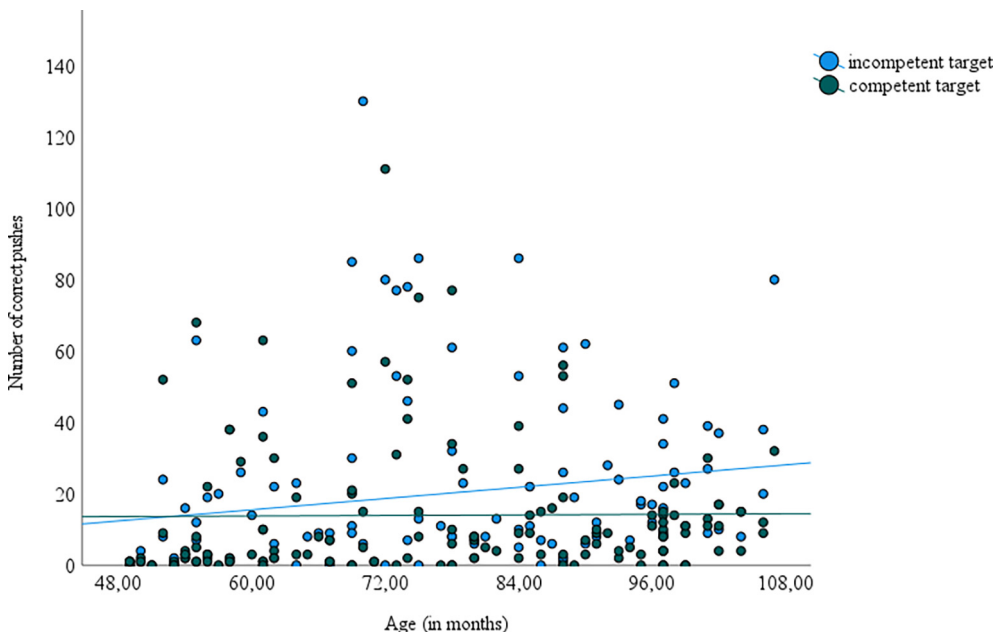
Fig. 2). Moreover, with age children helped the incompetent target more ( $\beta = .20, p = .02$ ), whereas age was not related to helping the competent target ( $\beta = .01, p = .91$ ).

*Time spent helping.* A main effect was found for competence of the recipient of help ( $\beta = -.15, p = .02$ ), indicating that children spent longer helping the incompetent target than the competent target. In addition, there was a significant interaction for age and competence ( $\beta = -.11, p = .03$ ). Simple slope analyses showed that older children (1 SD above the mean) helped the incompetent target longer than the competent target ( $\beta = -.26, p < .001$ ), whereas younger children (1 SD below the mean) did not differentiate ( $\beta = -.04, p = .59$ ). Moreover, children's age was related to helping the incompetent target ( $\beta = .22, p = .01$ ) but not to helping the competent target ( $\beta = .00, p = .99$ ).

#### Additional descriptive information and exploratory analyses

*Total number of pushes.* When we included the number of pushes as instructed as well as the number of incomplete pushes (excluding 1 outlier), a main effect was found for competence of the recipient of help ( $\beta = -.13, p = .003$ ). In addition, although children's age did not result in a main effect, there was a significant interaction for age and competence ( $\beta = -.10, p = .03$ ). Simple slope analyses showed that older children (1 SD above the mean) helped the incompetent target more than the competent target ( $\beta = -.23, p < .001$ ). In contrast, younger children (1 SD below the mean) helped the competent and incompetent targets equally ( $\beta = -.04, p = .57$ ). Moreover, with age children helped the incompetent target more ( $\beta = .18, p = .047$ ), whereas age was not related to helping the competent target ( $\beta = -.02, p = .82$ ).

*Helping by different age group.* Our preregistered analyses called for treating age as a continuous variable. Nevertheless, the simple slopes analyses presented above suggest that children under 5 years of age (i.e., 1 SD below the mean age) performed differently than older children (i.e., those 1 SD above the mean). To examine children's helping decisions by age more closely, we classified each participant as helping both targets equally, helping the competent target more, or helping the incompetent target

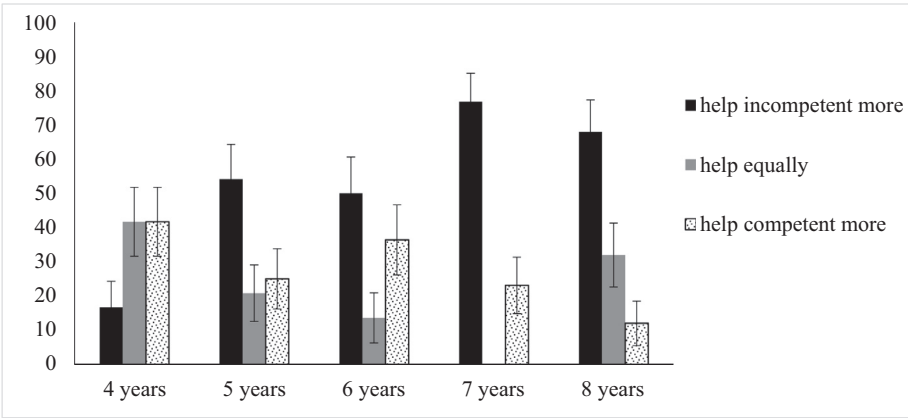


**Fig. 2.** The Influence of Age (In Months) on the Number of Times Children Pushed the Lever (as instructed) for the Incompetent and Competent Target in Study 1.

more. Descriptives for helping strategy with regard to the number of pushes as instructed are shown in Fig. 3 and do not include children who did not help. Interestingly, 40% of the 4-year-old children helped both targets equally, 36% helped the competent target more, and 24% helped the incompetent target more. This pattern changed drastically from 5 years of age onward; the majority of children over 4 years of age (62.9%) helped the incompetent target more.

*Who they said they helped and why.* Across all children, the majority said they helped the incompetent target more (47.7%), which was followed by saying that they helped both targets equally (39.8%). Only a small minority said they helped the competent target more (10.2%), and 3 children did not answer this question. Table 3 shows who children said they helped according to age.

Children's justification for why they helped was less easy to understand. A large proportion of children (49.2%) did not provide a codeable answer to this question (e.g., "I don't know," "just because I wanted to"), and therefore we do not include analyses of children's justifications here but describe them in the online [supplementary material](#).



**Fig. 3.** Percentage of children in each age group who helped both targets equally, helped the competent target more, or helped the incompetent target more (Study 1). Children who did not help are not included here. Error bars represent standard errors.

**Table 3**  
Percentages of children who said they helped the incompetent target, competent target, or both targets in Study 1.

	Incompetent	Competent	Both
4-year-olds	24	16	60
5-year-olds	37.5	12.5	50
6-year-olds	45.5	13.6	40.9
7-year-olds	73.1	11.5	15.4
8-year-olds	60	0	40

Discussion

In line with previous research showing that children are motivated to help others (for an overview, see Warneken, 2018), nearly all children in the current study decided to help targets with solving a puzzle or getting balls into a hoop. In doing so, older children most often helped an incompetent child more than a competent child, whereas younger children (<5 years) did not. Rather, as is clear from Fig. 3, the most common strategies employed by 4-year-old children were to help both children equally and to help the competent child more. Indeed, only one quarter of the 4-year-olds helped

the incompetent child more. These findings suggest that young children do not generally give more help to those who need it more.

One reason why young children did not help incompetent children more might be that they simply did not understand who needed more help in this situation. Children as young as 4 years are able to accurately identify their own needs (Was & Warneken, 2017), infants look longer at a scene when someone provides help to a character who does not need it compared with someone who does (Köster, Ohmer, Nguyen, & Kärtner, 2016), and 3- to 5-year-old children think that others should provide help with harder tasks rather than easier tasks (Bennett-Pierre, Asaba, & Gweon, 2018). However, young children might have had trouble with our task in identifying someone's need based on competence information. To test whether young children in our study did not know who was in greater need of help, we conducted a second study in which we used the exact same setup but now asked children whom they thought needed more help.

## Study 2

### Method

#### Participants

A total of 25 4-year-old children ( $M = 52.24$  months,  $SD = 3.73$ ; 11 girls and 14 boys) were tested in this study. Of this sample, 20 children were White and 4 children were Asian (1 parent did not report the child's racial group).

#### Procedure

The same procedure was used as in Study 1, although we solely tested children in the puzzle condition because Study 1 did not reveal differences for the domain of helping. Moreover, children were not told that they could help, and therefore they were not introduced to the levers and did not practice using them. Thus, after participants were introduced to the competent and incompetent targets (order counterbalanced across participants) and their pictures were displayed, participants were asked, "Who do you think needs more help: [name of left target] or [name of right target]?" In addition, with the exception of the first 2 children tested, we also explored who they wanted to help ("What about if you could help them solve the puzzle—who would you want to help: [name of left target], [name of right target], or both?").

### Results

Preregistered analysis showed that 23 (of 25) participants said the incompetent target needed more help than the competent target (binomial test,  $p < .001$ ). Moreover, exploratory analysis showed that when asked who they wanted to help, 8 children said they wanted to help the incompetent target more, 8 children said they wanted to help both equally, 4 children said they wanted to help the competent target more, and 3 children said they did not know.

### Discussion

Study 1 showed that children younger than 5 years did not help the incompetent child more than the competent child. Study 2 indicated that how young children behaved in Study 1 was not due to a failure to understand who needed more help in the situation we presented to them. Moreover, even though 4-year-old children in Study 2 were well aware who needed more help, just as many children said they wanted to help both children equally as said they wanted to help the incompetent child more. This last result provides further evidence for the idea that young children are not motivated to help those who are less competent.

However, some alternative explanations remain for why young children did not differentiate in their helping. First, young children might have simply liked pushing the levers and may also have liked the idea of pushing each lever an equal number of times (simply for the sake of fun or interest).

Second, and relatedly, research on the knowledge–behavior gap (i.e., children endorse fairness but favor themselves when sharing resources; see [Blake, 2018](#)) suggests that a lack of self-regulation sometimes explains why children's beliefs do not align with their behavior. Children in our studies might have had trouble translating their knowledge about need into their actual behavior (e.g., because they enjoyed pushing the levers). A third possibility is that although the 4-year-old children in our study understood who needed more help, they did not understand that *they* were instrumental in providing that help. Thus, they might have had difficulty in grasping the idea that pushing a lever was providing a child with help; in other words, it might not have been clear to them *how* to help (see also [Bridgers & Gweon, 2018](#)).

In Study 3 therefore we presented 4-year-old children with the exact same helping task but now told them that one of the rooms was empty, and thus pushing the lever connected to this room would not provide help to anyone. We reasoned that if children were pushing the levers because they enjoyed doing so and without understanding that it was instrumental in the provision of help, the results would be similar to those of Study 1 (i.e., pushing both levers equally). However, if children understood that pushing the levers provided help, they should push the lever connected to a child more than the lever connected to an empty room.

### Study 3

#### *Method*

##### *Participants*

The same number of 4-year-old children as in Study 1 were recruited ( $N = 28$ ;  $M_{\text{age}} = 51.48$  months,  $SD = 3.12$ ; 15 girls and 13 boys; 22 White, 3 Hispanic or Latino, and 1 Asian [2 did not report racial group]). An additional 3 children participated but were excluded because they failed to answer the memory check correctly.

##### *Procedure*

The setup was again the same as in Study 1. However, because we were interested in whether children understood that pushing the levers meant that they were helping, information about the target's competency was no longer included. Again, we included only the puzzle condition.

We began by telling children about the rooms, the puzzle task, and how to use the levers. Participants then practiced pushing the levers. After the computers “crashed”, the experimenter looked for pictures of the children in the rooms. She showed participants the pictures, told children what their names were, and told them in which room these children were while putting their pictures up against the monitor.

**Manipulation.** The experimenter then said, “I will just check my messages and then we can start. Oh wait, I just got a message that [name of child] has gone home. His [Her] mom picked him [her] up, and he [she] is not coming back. Okay, so that means there is really no one in that room.” To make sure that children remembered which room was empty, the experimenter then asked children whether there was someone in the rooms and provided feedback if children answered incorrectly. Moreover, she turned over the picture of the child who was in the now empty room to make clear that there was no one in there. She then said, “Now this means that when you push this lever, that's how you help [name of left child], and when you push this lever, it is connected to this room, but there is nobody in there, right?” Afterward, children were told that they could decide what they wanted to do in the same way as in Study 1.

**Memory check.** After children indicated that they were done pushing the lever(s), the experimenter took the pictures down and asked them, “So, do you remember, was there someone in that room, yes or no? How about that room, was there somebody in there, yes or no?”

### Coding

As in Study 1, one research assistant coded all videos and a second research assistant coded 25% of the videos again. Coders did not know which lever was connected to an empty room or a recipient of help. Coders' agreement was strong for number of pushes as instructed ( $r = .95, p < .001$ ), total number of pushes ( $r = 1.00, p < .001$ ), time spent pushing the levers ( $r = 1.00, p < .001$ ), and total time helped ( $r = 1.00, p < .001$ ).

### Results and summary

Only 1 child decided not to help, and children spent on average 2.75 min pushing the levers ( $SD = 2.29$ ). In total, 3 children spent the entire 7 min pushing the levers, and 23 (of 28) children never touched the lever connected to the room that was empty.

Similar to Study 1, we specified mixed linear models for each dependent variable (i.e., number of correct pushes, number of total pushes including incomplete pushes, and time spent pushing the levers) with a centered contrast for the rooms (empty vs. target present; random slope). The number of correct pushes was our preregistered main dependent variable, whereas models for the total number of pushes and time spent helping were exploratory.

Results showed that children pushed the lever connected to a target more than the lever connected to an empty room ( $\beta = .97, p < .001$ ), a result that remained when incomplete pushes were included ( $\beta = 1.00, p < .001$ ). In addition, children spent a longer amount of time pushing the lever connected to a target ( $\beta = 1.07, p < .001$ ).

Children pushed the lever that they were told provided help to a child much more and for a longer amount of time than a lever that was connected to an empty room. Indeed, most children in Study 3 never touched the lever that was connected to an empty room. These findings suggest that 4-year-old children understood that it was only worthwhile to push the lever that provided help to a child and cast doubt on the idea that young children pushed both levers equally in Study 1 simply because they enjoyed doing so.

### General discussion

The current research shows that when differences in need are indicated by differences in competence, older children help those who need help more, whereas children under 5 years of age do not. Specifically, in Study 1, older children gave more help to a child who was described as having more difficulty with solving a puzzle or shooting balls into a hoop than to a child who was said to be competent in these domains. Older children's helping behavior thus was guided by the recipient's competence; they devoted more help to the person who needed it more. In contrast, children younger than 5 years helped competent and less competent children equally. Study 2 revealed that 4-year-old children's behavior was not due to their lack of understanding of who needed more help; the majority of 4-year-olds indicated that an incompetent child needed more help than a competent child. Moreover, Study 3 showed that when 4-year-olds were presented with a situation in which only one of the levers provided help to a child, nearly all of them solely pushed the lever that provided help. Thus, 4-year-olds understood that the levers were instrumental in providing help, suggesting not only that they knew *who* needed more help (Study 2) but also that they understood *how* to provide that help (Study 3).

An examination of the helping strategy children employed in Study 1 suggested that the least frequent outcome was for young children to help the incompetent child more than the competent child. Moreover, when 4-year-old children in Study 2 were asked who they wanted to help more, more than two thirds of them (68%) did not want to help the incompetent child more than the competent child even though they had just indicated that the former needed more help. Taken together, these findings indicate that the goal of helping someone who needs more help because he or she is not competent was not at the forefront of most of the young children's minds. This is an important finding and suggests that need-based helping—at least need that is based on someone's competence—might be a

much later developing or less robust milestone than previously assumed in the literature on the development of helping behavior.

Our findings resemble findings from Paulus (2020) on instrumental helping, in which only older children provided more instrumental help to those who needed it more. Our results are also resonant with studies focused on children's sharing, in which it is only around 4 or 5 years of age that children will share more resources with needy recipients compared with non-needy recipients (e.g., Malti et al., 2016; Paulus, 2014a; Sigelman & Waitzman, 1991; Wörle & Paulus, 2018). Thus, although sharing behavior differs in many ways from helping behavior (see Dunfield et al., 2011; Sierksma, 2018; Sierksma & Thijs, 2017), research on sharing suggests a similar developmental shift as what we report here.

### *Interpreting the youngest children's behavior*

Why did younger children behave as they did in the current research? One interpretation is that younger children's helping was guided foremost by equality and fairness considerations (e.g., McAuliffe, Blake, Steinbeis, & Warneken, 2017; Paulus, 2018; Sommerville & Enright, 2018; Warneken, 2018). Indeed, a majority of the 4-year-old children in Study 1 helped the competent and incompetent children equally. Second, a large proportion of all children said they helped equally (even if they did otherwise; Study 1). Third, when 4-year-olds were then asked to identify who they wanted to help in Study 2, some children still indicated that they wanted to help both even though they were clear on who needed their help more. These results suggest that equality concerns may trump concerns about competence-based need in young children.

A strong commitment to equality is in line with studies showing that infants and preschoolers expect third parties to distribute resources equally (Geraci & Surian, 2011; Rakoczy, Kaufmann, & Lohse, 2016; Schmidt & Sommerville, 2011; Sloane, Baillargeon, & Premack, 2012), that children as young as 3 years also share equally themselves when there are no costs involved (e.g., Fehr, Bernhard, & Rockenbach, 2008; Moore, 2009; Olson & Spelke, 2008; Shaw & Olson, 2012), and that when children get older they share equally even when this involves sacrificing their own resources (Blake, 2018). Moreover, Kenward and Dahl (2011) provided a particularly striking example of how equality concerns can trump other concerns in young children. They showed that when children were given plenty of cookies, 4.5-year-old children distributed cookies equally between a nice puppet and a puppet who violently hindered another puppet. Participants divided resources equally even when an odd number of resources were available to distribute (i.e., by not distributing all the biscuits). In sum, young children can be highly motivated to be equal in their prosocial behavior even when this is costly for them to do. For this reason, children younger than 5 years in Study 1 might have helped the competent and incompetent targets equally. It would be interesting for follow-up research to assess young children's helping of competent and incompetent targets when helping equally is not possible (e.g., a forced-choice paradigm) in order to test the robustness of the pattern we observed.

An alternative explanation for 4-year-old children's apparent lack of consideration of competence is that young children's behavior is guided by multiple motivations. For example, 4-year-olds may feel an inclination to help those who are incompetent, but this motivation may compete with a desire to affiliate (e.g., Carpendale et al., 2015; Dahl, 2015; Over, 2016; Paulus, 2018; Wynn, 2009). Because young children often like competent others more than incompetent others (e.g., Brosseau-Liard & Birch, 2010; Cain et al., 1997; Jara-Ettinger et al., 2015; Lane et al., 2013), it is likely that some children might have wanted to affiliate with the competent target by providing more help to him or her (Horton et al., 2021; Kim et al., 2016; Paulus, 2016). Competing motivations (i.e., liking competent people, wanting to help incompetent people, and wanting to be equal) could have resulted in the youngest children in our study behaving similarly toward the competent and incompetent targets. Only later in life (here, from 5 years of age onward) does one principle "win out" when the situation calls for it.

### *Developmental changes in children's helping*

Our results also raise the question of what changes developmentally that leads older children to help competent children more than incompetent children; what caused older children to treat

competence-based need (rather than, e.g., a commitment to equality) as the most relevant factor in determining who should receive the most help in Study 1? One possibility is that with age children learn when the alleviation of need should be at the forefront of their helping and when other motivations are appropriate. After all, adults also help others for different kinds of reasons (see [Stürmer & Snyder, 2010](#)). Age-related learning might occur because children, for example, gain more and more experience with helping and its consequences and develop a more elaborate moral framework to reason about it ([Dahl & Paulus, 2019](#)). Such learning could come from direct instruction (e.g., “Your brother needs more help than your sister; go help your brother”) or implicit learning (e.g., children experiencing or observing that members of their culture who they respect are more likely to give help to those who are relatively incompetent). To better understand underlying mechanisms of developments in children’s helping, future studies could, for example, take direct measures of children’s moral reasoning (e.g., see [Sierksma, Thijs, Verkuyten, & Komter, 2014](#)) and link these to their competence-based helping behavior. Moreover, future studies could examine whether need-based helping (in response to information about competence) might emerge earlier when young children are explicitly taught the moral rules about helping beforehand or when they have a chance to observe a trusted model help an incompetent person more than a competent person.

Another important factor that might change children’s helping behavior is how young and older children think about what constitutes fair treatment. Specifically, research shows that young children regard equity and fairness as similar to equality, suggesting that they consider absolute numbers to infer what is fair. For example, one study showed that 4-year-old children’s preference for puppets was determined by the number of coins these puppets gave away independent of whether a puppet was poor or rich (i.e., a poor puppet vs. a rich puppet who shared; [McCrink, Bloom, & Santos, 2010](#)). Similarly, 3- to 5-year-old children divide stickers fairly in terms of numbers but not with regard to value ([Chernyak & Sobel, 2016](#)). However, with age children condone dividing resources unequally when one child deserves more than the other (i.e., because the former worked harder) but not when inequality is illegitimate ([Shaw & Olson, 2012](#)). Older children thus seem to take into account deservingness or merit when distributing resources, whereas young children are merely focused on equal treatment in numbers. This might mean that all the children in our study were motivated to help both children fairly. As a consequence, young children helped both children equally (i.e., numerical equality), whereas older children gave more help to the child that deserved more help (i.e., equity). To address this developmental change and understand whether it informs children’s helping, future studies could, for instance, provide children with explicit information about deservingness or test situations that make fairness norms less salient, for example, by using a between-participants design (see also [Starmans, Sheskin, & Bloom, 2017](#)).

### *Limitations and future research*

One important next step is to identify the generalizability of these findings across various forms of need and competence as well as types of helping behavior. In the current study, we explicitly told children who was competent and who was less competent. In real life, however, children often need to determine themselves who is in need of help, and it is important to understand how children do this as well as when they will do it. Moreover, it is also important to examine young children’s competence-based helping in situations that are less abstract regarding how help should be provided and in situations that involve higher levels of need (e.g., someone is very hungry or hurt). Moreover, future work could focus on need arising from other, perhaps more familiar, forms of (in)competence (e.g., competence in schoolwork), or studies could focus on situations where children can see exactly how their helping actions address targets’ needs. It is possible that young children will be more likely to act on other people’s needs in such instances.

Another valuable next step would be to assess how children’s helping changes when children have more information about the target of help. For example, how would providing children with information about *why* people are incompetent (e.g., through their own fault or beyond their control) change children’s behavior? In addition, how would manipulating the social group memberships of potential recipients of help alter children’s behavior? Previous research has shown that children’s prosocial behavior can depend on recipients’ social group membership and status (e.g., [Dunham, Baron, &](#)

Carey, 2011; Elenbaas & Killen, 2016; Renno & Shutts, 2015; Sierksma, 2018) and that stereotypes can influence children's helping (Sierksma et al., 2018; see also Cuddy, Fiske, & Glick, 2007). It would be interesting to assess how social characteristics modulate children's responses to relative need.

Insight into the role of need in children's helping is crucial to better understand why and when children help others. Here we show that young children do not help those who need it more when presented with a case in which need can be inferred from someone's competence, whereas older children do. This is an important finding that sheds light on our understanding of helping behavior across development.

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## Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jecp.2021.105206>.

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