



## Becoming prosocial: The consistency of individual differences in early prosocial behavior



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### ABSTRACT

Recent research on early prosocial behavior has questioned whether young children show consistency in their prosocial responding across different tasks and over time. Two studies are reported that address this issue, one with 18-month-olds ( $n = 86$ ) and one with older children studied longitudinally at 4.5 and 6 years ( $n = 51$ ). In each, children's responses to multiple age-appropriate prosocial tasks were assessed using both variable-centered and person-centered analyses. Variable-centered analyses revealed generally significant associations between children's responses across tasks and, in older children, over time. Person-centered analyses revealed that children were distinguished into low prosocial, moderate prosocial, and "frequent helpers" groups with the addition of a high prosocial group in older children. These findings indicate that although situational characteristics are important, their importance varies across children and development. Results suggest that young children tend to show consistency in individual differences in their prosocial responding across situations and distinct dispositional profiles of children can be observed, including those who demonstrate high prosocial responding across situations requiring different cognitive, social and motivational skills.

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### 1. Introduction

Prosocial behavior (i.e., behavior intended to benefit another) emerges early in life and increases in sophistication along with growth in emotion understanding, perspective taking, and awareness of others' goals and desires (Eisenberg, Eggum, & Spinrad, 2015). According to Eisenberg, Eggum et al. (2015), early childhood appears to be a particularly important period for the emergence of prosocial responses to others. Current research about early prosocial behavior has yielded at least two important conclusions. First, very young children are far more capable of providing assistance, even to a stranger and in the absence of rewards, than was earlier believed (see Dunfield & Kuhlmeier, 2013; Svetlova, Nichols, & Brownell, 2010; Warneken & Tomasello, 2006). Second, there

also is considerable variability in responding at these early ages. According to some recent studies, young children offer to help a stranger on one task but not on another, and even those who help may not share or provide comfort to a distressed stranger. This has led some researchers to conclude that early prosocial behavior is situation-specific, contingent on the specific task demands and unlikely to reflect a generalized motivation to respond prosocially (e.g., Dunfield, Kuhlmeier, O'Connell, & Kelley, 2011). The purpose of the two studies reported here was to gather additional data on this issue by examining the consistency of prosocial behavior across multiple tasks at three ages – 18 months, 4½ and 6 years – and the stability of individual differences between ages 4½ and 6. Our goal was to determine whether consistent profiles of prosocial responding would emerge through person-centered analyses, and whether these profiles would be consistent at different tasks and stable longitudinally.

In their review of research on prosocial development, Eisenberg, Eggum et al. (2015) concluded that there is evidence for modest consistency of individual differences in prosocial responding across situations and stability over time, but that distinct types of responding (e.g., helping vs. sharing) tend to be poorly interrelated and the

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evidence for stability of prosocial behavior is weakest for younger ages. Some recent studies support this conclusion. In a study with 18- to 30-month-olds, [Brownell, Svetlova, Anderson, Nichols, and Drummond \(2013\)](#) found modest or nonsignificant associations between children's responses to instrumental helping, empathic responding, and altruism tasks, and [Sommerville, Schmidt, Yun, and Burns \(2013\)](#) reported similar results for assessments of helping and sharing in a somewhat younger sample. [Dunfield et al. \(2011\)](#) found that there was no consistency in the responses of 18- and 30-month-olds to tasks assessing helping, sharing, and comforting. In a follow-up study, [Dunfield and Kuhlmeier \(2013\)](#) noted that although 2- to 4-year-olds responded consistently in multiple trials assessing the same type of prosocial behavior, children responded inconsistently across tasks related to an adult's instrumental need, emotional distress, and material desire.

One reason that young children might respond inconsistently to different kinds of prosocial tasks is that these tasks require different cognitive, social, and motivational skills of the child ([Thompson & Newton, 2013](#)). Helping tasks primarily require an awareness of the adult's goals and what is needed to assist. Sharing is, by contrast, costlier because sharing resources to another person leaves fewer for the child. Compassionate responding (i.e., empathic responding) to an adult's distress is the most costly and complex as it involves complicated judgments of the adult's emotions, its causes, and what the child can do to provide assistance ([Eisenberg & Shell, 1986](#)). In addition, another's distress can arouse personal distress rather than empathy in the child, and this might undermine assistance ([Eisenberg, Eggum et al., 2015](#)). Taken together, the different cognitive, social, and motivational requirements of alternative prosocial tasks increase the possibility that young children will respond in a task-specific manner. From a developmental perspective, this might suggest greater individual consistency emerges in prosocial responding with growth in these cognitive capacities and social understanding.

Before concluding that early prosocial behavior is primarily situational, however, other considerations are warranted. The procedures used by researchers in this field vary significantly, for example, in ways that can potentially affect young children's prosocial responses and their consistency across tasks. The amount of time provided for children to respond is one example. Response times range from 10-s ([Dunfield et al., 2011](#)) to 30–60-s ([Brownell et al., 2013](#)), which may be significant especially for young and temperamentally reserved children. Another example is the complexity of the tasks themselves, which range from procedures involving a series of graded prompts to elicit prosocial responding ([Brownell et al., 2013](#); [Svetlova et al., 2010](#)) to simple situations involving nonverbal cues of goal obstruction ([Warneken & Tomasello, 2006](#)). In some cases, the child is directly asked for assistance, in other cases not. A third consideration is how researchers evaluate children's prosocial responses. Whereas some researchers index only whether young children performed the full criterion response ([Dunfield & Kuhlmeier, 2013](#); [Dunfield et al., 2011](#)), others use more graded indices that include concerned attention, hypothesis testing, verbal comments or questions relevant to need, and partial responses (e.g., [Brownell et al., 2013](#); [Hastings, Rubin, & DeRose, 2005](#); [Trommsdorff, Friedlmeier, & Mayer, 2007](#); [Vaish, Carpenter, & Tomasello, 2009](#)). Each of these procedural variations could affect assessments of the rate and consistency of prosocial responding, especially of young children.

To the best of our knowledge, all or nearly all of the research in this area uses variable-centered analytical methods involving correlations, regressions, and related methods to denote the consistency of prosocial responding across tasks. Such approaches are conventional for the field, but increasingly, developmental researchers are using person-centered analytical methods when they seek to distinguish groups of respondents on the basis of

their common profiles on a variable set. Person-centered analyses are designed to identify groups of individuals who share common configurations of variables; group membership is determined by the associations of the variable set within groups. Examples of person-centered analyses include cluster analytic methods and Latent Profile Analysis (LPA). Person-centered analyses are increasingly used in developmental study, such as in research efforts to distinguish children according to their stress reactivity, knowledge profiles, or other behavioral characteristics (see [Hubbard, Smith, & Rubin, 2013](#); [Schneider & Hardy, 2013](#)). Where the study of early prosocial responding is concerned, a person-centered analysis is better designed to distinguish groups of children who are high or low in their responses to prosocial tasks, or to distinguish groups of children in other ways related to their responding (such as those who help on low-cost tasks from those who assist when resources must be shared). Moreover, in developmental analysis, it is possible to compare whether the groups derived from person-centered analyses at one age are similar to those derived from the responses of older or younger children. Person-centered analyses are a useful complement to variable-centered analyses in studying the reliability of prosocial responding by evaluating whether children empirically aggregate into groups that are distinguished by the rate of prosocial responding across tasks, and whether such groups are stable over time.

The two studies reported in this manuscript were designed with these considerations in mind. In each study, one with 18-month-olds, and the other a short-term longitudinal study with children at ages 4½ and 6 years, children were observed in age-appropriate assessments of their helping, sharing, and compassionate responding. These tasks were selected because they vary significantly in their requirements of the child, and are the kinds of tasks for which evidence of the situation-specificity of children's responding is greatest in prior research. In Study 1, we studied 18-month-olds because this is the youngest age for which researchers have developed a full complement of prosocial tasks. We assessed children's prosocial behavior in three different types of tasks including instrumental helping, sharing, and compassionate responding. In Study 2, we studied preschoolers because this is when individual differences in prosocial responding may begin to become stable, and thus provided a suitable comparison to the toddler sample. As with Study 1, we focused on three different types of prosocial responding tasks: instrumental helping, sharing, and compassionate responding. Although different prosocial tasks share some common characteristics, instrumental helping primarily requires understanding the experimenter's goals and how they are impeded, while sharing requires giving up resources and compassionate responding involves emotional appraisals. These different task requirements may be one reason why prior studies have indicated that more children, and children at younger ages, provide instrumental helping compared to sharing and empathic responding ([Eisenberg, Spinrad, & Knafo, 2015](#)).

The studies were designed to provide children at each age with adequate time to appraise the circumstances and respond, and we conducted a graded coding of their responses at each age that credited children with partial efforts to assist the experimenter. Children responded to simple tasks involving the experimenter's obstructed goals, need for resources, and distress following an accident, and the experimenter never requested help from the child nor thanked the child for assistance. Both variable-centered and person-centered analyses were used to examine the consistency of prosocial responding across tasks at each age and the stability of individual differences in prosocial behavior from age 4½ to 6 years.

We hypothesized modest consistency of individual responding across the different prosocial assessments at 4½ and 6, but less intraindividual consistency at 18 months because these responses involve capacities that are early in development. We also antic-

ipated that there would be developmental differences between the toddler and older samples in the person-centered profiles of prosocial variables, with groups of preschoolers distinguished by the overall amount of prosocial behavior exhibited across tasks in a manner not apparent in toddlers. Finally, in light of other studies reporting modest stability of individual differences in prosocial behavior in young children (see Eisenberg, Spinrad et al., 2015), we hypothesized the same for the stability of responding of children from age 4½ to 6.

## 2. Study 1

### 2.1. Materials and methods

#### 2.1.1. Participants

Eighty-seven 18-month-olds ( $M = 18.77$ ,  $SD = .53$ ; 42 females) and their mothers participated in this study. Mothers were recruited through local mothers' groups, fliers posted in the community, and through participant referrals. All mothers spoke English in the home with their participating children. Mothers ranged in ethnicity (79% Caucasian, 10% Asian/Pacific Islander, 5% Hispanic/Latino, 3% African American, 3% other), age ( $M = 32.42$ ,  $SD = 4.40$ ), education (38% master's degree or higher, 42% bachelor's degree, 13% associate or technical degree, 7% high school diploma or GED), and household income (9% over \$150k, 29% \$150–100k, 24% \$100–75k, 20% \$75–50k, 8% \$50–25k, 9% \$25k or less). Mothers were given \$45 and a small toy for their children.

#### 2.1.2. Prosocial behavior

Each child was observed during two trials of each of the following types of tasks: instrumental helping, sharing, and compassionate responding. In order to minimize carryover effects, the task types were counterbalanced such that each child was observed in one trial of each task type in two separate sets of trials, separated by several other 5–10 min tasks including typical parent-child interactions (e.g., storybook reading and a free play session). The experimenter interacting with the child did not explicitly reward the child in any manner in any of the trials in which the child demonstrated the target prosocial behavior. Mothers were seated nearby but were instructed to occupy themselves with magazines during the procedure. The experimenters who engaged with children during the prosocial tasks were doctoral students with extensive training in child development and experience working with young children. The experimenters rehearsed to ensure comfort with the procedure and underwent specific training by an acting teacher on expressing sad affect and confusion during the prosocial tasks.

**2.1.2.1. Instrumental helping.** Instrumental helping tasks were adapted from Warneken and Tomasello (2006). Each child was observed during two 30-s instrumental helping trials, with one trial consisting of an out-of-reach task (in which the experimenter needed an item that could not be reached, and the child could pick it up and hand it to the experimenter) and the other consisting of a blocked-goal task (in which the experimenter's ability to complete the task was blocked by an item that the child could remove). The out-of-reach tasks consisted either of a dropped roll of tape when the experimenter tried to tape a poster to the wall, or a dropped clothespin when the experimenter tried to hang a towel on a clothesline. The blocked-goal tasks consisted either of a closed cupboard door when the experimenter attempted to put bowls in the cupboard, or a closed bin when the experimenter tried to put a blanket in the bin.

In both instrumental helping tasks, the experimenter vocalized non-word utterances (“hmm,” “hunh”) and looked directly at her problem (the item she needed or the door/bin lid in her way) for

10-s with a confused expression. In the out-of-reach tasks, she also reached for the needed item, and in the blocked-goal task, she bumped the item in her hands (bowl or blanket) into the item in her way (door or lid). For the following 10-s, she alternated looks between the problem and the child. For the final 10-s, she stated something about her problem (“My clothespin!”) and continued alternating looks. If the child instrumentally helped, she expressed mildly positive affect and stated that her goal was met (e.g., “Now I can hang up my towel.”) without thanking or rewarding the child in any way. If the child did not help by the end of the trial, the experimenter stated, “Oh well. I guess I'll finish that job later.”

**2.1.2.2. Sharing.** Each child was observed in two 60-s sharing tasks. In one task, a research assistant provided the experimenter and the child small clear buckets for play. In the child's bucket, there were five plastic farm animals. The experimenter's bucket was empty. The experimenter looked in her bucket and turned it over for the first 10-s of the trial while vocalizing non-word utterances. For the subsequent 10-s, the experimenter alternated looks between the child and empty bucket while continuing her previous behaviors. For the remaining 40-s, the experimenter commented on her situation (e.g. “I don't have any toys to play with,” “My bucket is empty”), and continued her previous behaviors (alternating looks between the child and the bucket, shaking and examining the bucket). The trial ended if the child put an animal in the experimenter's bucket, at which point the experimenter said, “Now I can play.” If the child did not share, the experimenter stated, “Oh well, maybe I'll get some toys later.” The second sharing task proceeded in a similar manner with the research assistant bringing two containers, one with snack items for the child and an empty one for the experimenter. Over the next 60-s, the experimenter examined her container, turned it over, and subsequently commented on her situation in a manner similar to the other sharing task.

**2.1.2.3. Compassionate responding.** Each child was observed in two 60-s compassionate responding tasks adapted from Kochanska, Gross, Lin, and Nichols (2002) so that the child was not responsible for the broken toy. For both tasks, the experimenter told the child that she really wanted to play with her favorite doll (or tractor toy) and that she wanted to show it to the child. Then she removed the toy from the basket in which it was stored. For the doll task, the doll's leg fell off as the experimenter pulled it out of the basket. For the tractor task, two of the tractor's four wheels fell off as it was removed from the basket. Once it was clear the toy was apparently broken, the experimenter expressed sad affect vocally and facially for the duration of the trial. After 10-s of looking at the broken toy with her face in her hands, the experimenter then alternated looks between the child and the toy. After 10 more sec, the experimenter commented on her situation (e.g., “Oh, no. My favorite doll! It's broken”) while continuing to alternate looks between the toy and the child for the duration of the trial. If the child repaired the toy, the experimenter stated, “Now my toy is fixed.” If the child did not help, the experimenter stated, “Oh well. Maybe I can fix it later,” and put the toy away.

**2.1.2.4. Coding and reliability.** Given that Vaish et al. (2009) were able to capture individual differences in very young children's prosocial responding using more graded indices, we coded children's behavior during the prosocial tasks using a 5-point scale based upon that of Vaish et al. (2009), and incorporated elements of prosocial responding that have frequently been indexed in prior studies (e.g., concerned attention, inquiry about the situation, partial attempt at helping) to ensure validity. Children received a single score for the highest level of prosocial behavior observed during each trial. Children received a score of 1 if they attended to the experimenter fleetingly, for fewer than 5-s; 2 if they sus-

**Table 1**  
Means standard deviations, ranges for all analytic variables, Study 1.

Prosocial Behavior	Descriptive statistic		
	<i>M</i>	<i>SD</i>	Range
Instrumental Helping	3.44	1.03	1.50–5.00
Sharing	3.11	.85	1.50–5.00
Compassionate Responding	2.99	.75	1.50–4.50

**Table 2**  
Fit indices for latent profile analysis models, Study 1.

Statistic	Number of Profile Classes			
	1	2	3	4
Log Likelihood	–330.611	–320.223	–297.619	–294.819
AIC	673.222	660.446	623.237	625.638
BIC	688.017	685.105	657.760	670.024
ABIC	669.085	653.552	613.586	613.228
BLRT <i>p</i> -value	N/A	.00	.00	.50
Entropy	N/A	.764	.968	.964

Note: AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; ABIC = Sample Adjusted BIC; BLRT = Bootstrap Likelihood Ratio Test.

tained their attention to the experimenter for longer than 5-s; 3 if they described the situation or requested relevant information while watching but provided no further instrumental assistance; 4 if they attempted to assist the experimenter but were unsuccessful; and 5 if they clearly performed the target, instrumental prosocial response (instrumental helping, sharing with, or repairing the toy of the experimenter). Reliability was established using 20% of the sample for each task ( $\kappa$ s ranged from .76 to .96). The scores for the two sharing trials were significantly correlated ( $r = .30, p < .01$ ), and the scores from the two instrumental helping trials and the two compassionate responding trials were positively but non-significantly correlated ( $r = .11, p = .30$  and  $r = .16, p = .14$ , respectively). Based on their conceptual similarity and positive associations, the mean of the scores for the two trials for each task was calculated to indicate prosocial behavior for each type.

### 2.1.3. Procedure

Upon arrival at the laboratory, mothers and their 18-month-olds were taken to a waiting area where the mother reviewed consent information and was informed of the procedures for the visit by the second experimenter. During this time, an experimenter interacted briefly with the child. After entering a large playroom, a research assistant demonstrated how clothespins worked, and showed the child the cupboard and bin to be used in later instrumental helping tasks in order to ensure that the child could open the door and lift the lid off the bin. After this warm up period, the mother was instructed to sit in a corner of the room reading a magazine. The experimenter proceeded through three prosocial trials (one of each task type). After this, the mother and child were shown to another room where they completed several other tasks unrelated to the aims of the present report. Then the experimenter and the child completed the remaining three prosocial trials. All prosocial trials were counterbalanced between the two prosocial blocks.

**Table 3**  
Means of prosocial behavior for each task type and in each latent class from the three-class model, Study 1.

Task	Low Prosocial <i>n</i> = 24	Moderately Prosocial <i>n</i> = 43	Frequent Helpers <i>n</i> = 20
Instrumental Helping	2.07 <sub>a</sub>	3.52 <sub>b</sub>	4.85 <sub>c</sub>
Sharing	2.73 <sub>a</sub>	3.26 <sub>b</sub>	3.25 <sub>ab</sub>
Compassionate Responding	2.52 <sub>a</sub>	3.21 <sub>b</sub>	3.08 <sub>b</sub>

Note: Means for each of the three prosocial groups on each task type with different subscripts are significantly different at the  $p < .05$  level. Mean comparisons were tested using Tukey's HSD test.

## 2.2. Results

### 2.2.1. Preliminary analyses

Before testing the study hypotheses, the data were examined for order effects on prosocial behavior. Two one-way ANOVAs were conducted with prosocial behavior scores as dependent variables and a) the order of tasks within the two blocks and b) the order in which the blocks were presented as predictors. No order effects were detected.

The means, standard deviations, and ranges for the prosocial measures presented in Table 1 show that there was considerable variability in toddlers' prosocial behavior for each task type, with mean scores around the midpoint of the scale. *T*-tests showed that there were no significant differences in prosocial behavior by child gender. Maternal education, ethnicity, and household income were not significantly correlated with any of the child outcome measures.

### 2.2.2. Variable-centered analyses

A variable-centered approach was first used to examine the consistency of individual differences in prosocial responding. There were low but statistically significant correlations between instrumental helping and sharing behavior ( $r = .24, p < .05$ ) and between instrumental helping and compassionate responding ( $r = .22, p < .05$ ), but compassionate responding and sharing were not correlated.

### 2.2.3. Person-centered analyses

Latent profile analysis (LPA) was used to examine prosocial profiles. While the study sample is not large, research examining the factors influencing statistical power to detect the correct number of latent classes using LPA has found that the effect of sample size is minimal compared to the effect of the distance between latent classes, which plays a larger role in determining power than other sample characteristics (Tein, Coxe, & Cham, 2013). Using Mplus, one-, two-, three-, and four-class latent profile models were compared according to standard fit criteria: BIC, AIC, sample adjusted BIC, BLRT *p*-value, and entropy (see Table 2). According to these comparisons, the three-class model had the best fit, minimizing the AIC and BIC while maintaining strong entropy.

Table 3 shows the mean scores for instrumental helping, sharing, and compassionate responding for each of the latent profiles and identifies significant differences between the three latent profiles on each prosocial task. The *low prosocial* profile ( $n = 24$ ) was characterized by low rates of prosocial behavior in all three task types, and the *moderately prosocial* profile ( $n = 43$ ), the modal group, was characterized by moderate rates of prosocial behavior in all three task types. Individuals fitting the final profile ( $n = 20$ ), "*frequent helpers*," had the highest scores for instrumental helping but had moderate sharing and compassionate responding scores, comparable to those of the second group.

## 2.3. Discussion

Study 1 aimed to further investigate the consistency of prosocial responding across tasks in toddlerhood. In light of the cogni-



tive, social and motivational capacities required for prosocial responding which are still early in their development in toddlers, we anticipated low to modest intraindividual consistency at 18 months. The findings of Study 1 indicate that there may be greater consistency in toddlers' prosocial behavior than has been indicated in prior research. The variable-centered bivariate correlations indicated that responses to instrumental helping and both sharing and compassionate responding tasks were low, but significantly correlated, while sharing and compassionate responding were not. It is possible that the greater, although low, consistency in young children's prosocial responding in this study compared to others (e.g., Dunfield & Kuhlmeier, 2013; Sommerville et al., 2013) derived from methodological differences, such as the use of simpler procedures and providing a longer response window. Follow-up research would be necessary to confirm the importance of these differences in methodology.

We sought to complement to variable-centered analyses in studying the reliability of prosocial responding by using person-centered analyses to evaluate whether children empirically aggregate into groups that are distinguished by the rate of prosocial responding across tasks. The person-centered LPA yielded the additional finding that individual differences in responses to these tasks best distinguished children who were low prosocial, moderately prosocial, or "frequent helpers. Thus, children's behavior across tasks did not simply distinguish low, moderate, or high prosocial responding, nor distinguish children who helped instrumentally, those who shared, and those who were empathizers. Instead, young children who responded at low or moderate levels did so consistently across all three task types, but those who helped frequently did so only for instrumental helping, which was the type of prosocial responding that required little emotion understanding nor required giving resources to the experimenter (Thompson & Newton, 2013). As others have noted (e.g., Svetlova et al., 2010), instrumental helping is easiest for very young children to enact, and these findings suggest that even the 18-month-olds who were most motivated to help failed to respond comparably when prosocial tasks were more demanding.

Taken together, these findings suggest that elements of the prosocial task are important, such as whether helping is easy to perform or involves additional demands, and that characteristics of the child are also important, such that some children are much less prone to provide assistance than others regardless of task requirements. These findings are consistent with the view that different subtypes of prosocial behavior are related, not independent, in their developmental trajectories (cf. Dunfield & Kuhlmeier, 2013).

### 3. Study 2

#### 3.1. Materials and methods

##### 3.1.1. Participants

Sixty-five mother-child dyads were recruited to participate in Study 2. Mothers were recruited when the target children were 4½ years of age ( $M = 4.57$ ,  $SD = .31$ , 55% female) through newspaper and online ads, preschools and childcare centers, community fliers, and referrals from families who had already completed the study. Families were then invited back to participate in a follow-up laboratory visit 18 months later when the child was age 6 ( $M$  age = 6.02,  $SD = .37$ ). At the end of each of the two visits, mothers were given \$50 and children were given a small toy prize to take home.

Although 65 mother-child dyads completed the Time One (T1) assessment, 14 mother-child dyads did not participate in the Time Two (T2) assessment (5 due to relocation, 9 due to work schedules). There were no differences between children who participated at T2 and those who did not on any measure of prosocial behavior at

T1. Likewise, there were no differences between their families on maternal or child age, ethnicity, maternal education or household income.

The remaining 51 participants included 30 girls and 21 boys. Mothers were from a range of ethnicities (61% Caucasian, 21% Hispanic/Latino, 8% Asian/Pacific Islander, 8% African American, 2% other), primary languages spoken at home with children (82% English, 13% Spanish), age ( $M = 36.88$ ,  $SD = 4.93$ ), education levels (31% master's degree or higher, 39% bachelor's degree, 14% associates or technical degree, 10% high school diploma or GED, and 4% 8th grade level), and household incomes (26% \$150–100k, 24% \$100–75k, 26% \$75–50k, 10% \$50–25k, 14% \$25k or less).

##### 3.1.2. Time one: prosocial behavior

Prosocial behavior was assessed using tasks with different target prosocial behaviors in a manner similar to Study 1. As in the other study, experimenters did not reward or thank children at any time if they responded prosocially. The experimenters who engaged with children during the prosocial tasks were trained research assistants which substantial knowledge of child development. The experimenters rehearsed to ensure comfort with the procedure and trained on expressing sad affect and confusion during the prosocial tasks. For children whose home language was Spanish, the tasks were conducted in child's preferred language by bilingual experimenters. Prosocial tasks were administered in counterbalanced order and were interspersed with other 5–10 min tasks not included in this report including typical parent-child interactions (e.g., semi-structured parent-child conversations) and play-based activities (e.g., puppet show and a free play session).

**3.1.2.1. Instrumental helping.** Instrumental helping was assessed using a modification of a procedure from Hastings et al. (2005). The experimenter entered the playroom with a large basket with paper for coloring and a dozen colored markers, pretended to stumble, spilled everything on the floor, said, "Oops! Oh no, I dropped my markers!" Then the experimenter stood and looked at the markers while holding the basket and other materials for 10-s. Last, the experimenter slowly set the basket down and picked up the markers one at a time, allowing the child the chance to assist for up to 60-s. The probe lasted until the child began helping to pick up the markers, or 60-s, at which time the experimenter finished picking up the markers and proceeded.

**3.1.2.2. Sharing.** During a snack break, a research assistant gave the child 10 crackers in a clear bag while the experimenter only received two crackers in her bag. The experimenter quickly finished the snack and then had nothing. The researcher then said, "I'm still hungry" and rubbed her stomach for 60-s. The probe lasted until the child offered one or more snack crackers or 60-s had elapsed, at which time the next activity ensued.

**3.1.2.3. Compassionate responding.** Compassionate responding was assessed using a modification of a procedure developed by Trommsdorff et al. (2007). The experimenter brought in two colored balloons to decorate as "balloon people" with the child. The experimenter and child sat on adjacent sides of a small child-sized table and each decorated their balloons with faces and gave them names. Then, after decorating the balloons, the experimenter's balloon suddenly popped and s/he said in a sad voice, "Oh no, my balloon popped. I'm very sad about this," covered her face, sighed, and showed sorrow. The probe lasted until the child offered to his/her balloon to the experimenter, or until 120-s had elapsed, at which time the next activity began.

**3.1.2.4. Coding and reliability.** As with Study 1, a graded coding scheme based upon Vaish et al. (2009) was used to code chil-

dren's prosocial behavior in each task using a 5-point scale and incorporated elements of prosocial responding that have frequently been indexed in prior studies (e.g., concerned attention, inquiry about the situation, partial attempt at helping) to ensure validity. Based on this, the following anchors were used: children received a score of 1 if they ignored the experimenter; 2 if they attended in a sustained manner to the situation (e.g., watches experimenter without making any descriptions or suggestions); 3 if they talked about the situation but provided no further help; 4 if they provided non-instrumental helping (e.g., suggestions for how the experimenter could resolve the problem on her own, distracting the experimenter, offering a consolation object); and 5 if they clearly performed the target, instrumental prosocial response (i.e., picked up one or more markers, shared one or more crackers, gave his/her balloon to the experimenter). The highest score achieved in the response period was used for analysis. Reliability was established using 20% of the sample ( $\kappa$ s ranged from .88 to .99).

### 3.1.3. Time two: prosocial behavior

Eighteen months later, children were observed in six tasks that were designed to assess instrumental helping, sharing, and compassionate responding, using two tasks for each in a comparable but distinct manner from assessments at T1 to reduce repeated exposure to the same tasks. As in the initial visit, these prosocial assessments were incorporated in counterbalanced order into a broader range of tasks. Experimenters never thanked or rewarded the children for their responses and were trained in the same manner as T1. For children whose home language was Spanish, the tasks were conducted in child's preferred language by bilingual experimenters.

**3.1.3.1. Instrumental helping.** Instrumental helping was assessed in two tasks in which the experimenter needed assistance. In one task, the experimenter accidentally knocked over a pencil box onto the floor and said, "Oops!" in a modification of a task by Iannotti (1985). The experimenter waited 10-s before getting down to the floor to slowly begin picking up the pencils one by one for 60-s or until the child assisted in picking all of them up. In the second helping task, the experimenter pretended to lose her car keys, said, "Hmm, I can't find my car keys. I don't know where they are. . ." looked from side to side, waited a few seconds, and then began to slowly make her way around the room looking for them for 60-s either with or without the child's participation, in a modification of a procedure by Knafo, Steinberg, and Goldner (2011). The probe continued until the child began helping to find the keys, or until 60-s had passed, at which time the experimenter "found" the keys.

**3.1.3.2. Sharing.** Sharing was assessed using two tasks in which the experimenter did not have enough of something necessary or desirable. In one task, the experimenter and child both played with a Mr. Potato Head toy. The child's toy contained a sufficient number of pieces to complete the face, but no duplicate or extra pieces, while the experimenter's toy was missing most of its pieces. Upon opening the toy and discovering that there were only two pieces, the experimenter said with a puzzled tone, "Huh, mine's missing a lot of pieces," looked again inside the toy for more and showed confusion for 60-s or until the child shared pieces from her toy. In another task, children's sharing was assessed in a naturalistic turn-taking task. The experimenter brought in an electronic memory game with lights and sounds that could be played by one person at a time but was conducive to turn-taking (similar to the explicit turn-taking task used by Benenson, Markovits, Roy, & Denko, 2003). The experimenter gave it to the child and after watching the child play with it, said, "That looks like fun. I wish I had one to play with too" in a

neutral tone, but did not explicitly request to play with the toy. The probe continued for 60-s or until the child shared the toy.

**3.1.3.3. Compassionate responding.** Compassionate responding was assessed using two tasks. The first was a simulated distress task modified from Zahn-Waxler, Shiho, Robinson, Emde, and Schmitz (2001) in which the experimenter pretended to have hurt her knee while getting up from a table by audibly bumping her knee on the table, rubbing her knee, looking pained and saying, "Ow!" The probe continued for 60-s or until the child made an explicit attempt to alleviate the experimenter's pain (e.g., patting the knee to make it feel better, or saying "It's OK"). The other task involved the experimenter providing two small plastic airplanes for the child and experimenter each to play with. The experimenter and child each decorated and assembled the planes to personalize them. After the experimenter demonstrated how to fly the airplane, ensuring that the child was enjoying using his/hers, the experimenter flew her plane, which was rigged to fall apart, and it broke. The experimenter said, "Oh no, my plane broke! I'm really sad about this" and showed sad and disappointed affect for 60-s or until the child gave his/her plane to the experimenter.

**3.1.3.4. Coding and reliability.** Children's prosocial behavior in each task was coded using a 5-point scale as described previously for T1 prosocial behavior. The anchor points were as follows: children received a score of a 1 if they ignored the experimenter, 3 if they described the situation but provided no further help, and a 5 if they clearly performed the target prosocial response. To achieve a score of 5, the target prosocial behavior for the instrumental helping tasks was for the child to pick up at least one pencil or to actively look for the lost keys. In the sharing tasks, the target prosocial behavior was for the child to share at least one of the Potato Head pieces or to share the memory game. In the compassionate responding tasks, the target prosocial behavior in the simulated distress task was an explicit behavioral attempt to alleviate the experimenter's pain (e.g., offering to put a bandage on it, patting the knee to make it feel better, or saying "It's OK") or, for the broken plane task, to give his/her plane to the experimenter. Importantly, the compassionate responding tasks differed from the sharing tasks in the cost of the target behavior for the child. For each of the compassionate responding tasks, unlike in the sharing tasks, the child did not have more than one of the desired objects (i.e., balloon or plane) and had to give it to the experimenter to receive the highest score of 5 (without knowing whether he/she would get it back). Reliability was established using 20% of the sample ( $\kappa$ s ranged from .92 to .90). The scores for the two tasks for each prosocial behavior were either significantly (instrumental helping  $r = .46, p < .01$ ; compassionate responding  $r = .49, p < .01$ ) or marginally (sharing  $r = .24, p = .09$ ), positively associated with each other for each type. As such, prosocial behavior scores were summed across the two tasks for each type of prosocial behavior to create composite scores for instrumental helping, sharing, and compassionate responding.

### 3.1.4. Procedure

Children made two visits to the laboratory for this short-term longitudinal study. At T1, when children were 4½ years old, children engaged in a brief free play warm-up period with the experimenter after arriving at the lab with their mothers. Following this, mothers went to a separate room to complete questionnaires, and the experimenter and the child completed the prosocial tasks in counterbalanced order, followed by other short 5–10 min tasks including typical parent-child interactions (e.g., semi-structured parent-child conversations) and play-based activities (e.g., puppet show and a free play session). At T2, when children were 6 years old, children again had a brief warm-up period to become familiarized with the space and experimenters. The prosocial behavior

**Table 4**  
Means, standard deviations, ranges for all analytic variables, Study 2.

Prosocial Behavior	Descriptive statistic		
	M	SD	Range
Time One			
Instrumental helping (markers)	4.58	.98	2.00–5.00
Sharing (snack)	3.98	1.26	1.00–5.00
Compassionate responding (balloon)	3.71	1.16	1.00–5.00
Time Two			
Instrumental helping (pencil box)	4.32	1.29	1.00–5.00
Instrumental helping (lost keys)	4.22	1.28	1.00–5.00
Sharing (potato head)	3.60	1.37	1.00–5.00
Sharing (memory game)	2.56	1.80	1.00–5.00
Compassionate responding (broken plane)	3.96	1.34	1.00–5.00
Compassionate responding (hurt knee)	3.12	1.34	1.00–5.00

**Table 5**  
Fit indices for latent profile analysis models, Study 2 at T1.

Statistic	Number of Profile Classes				
	1	2	3	4	5
Log Likelihood	−298.25	−214.29	−181.83	−169.66	−178.82
AIC	608.50	448.57	391.66	375.31	401.64
BIC	621.55	470.31	422.10	414.45	449.48
ABIC	602.66	438.84	378.03	357.79	380.23
BLRT <i>p</i> -value	N/A	.00	.00	.00	.00
Entropy	<i>n/a</i>	1.00	1.00	.96	.98

Note: AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; ABIC = Sample Adjusted BIC; BLRT = Bootstrap Likelihood Ratio Test.

tasks were administered in three blocks of two in counterbalanced order with several minutes in between each block in order to embed them among other activities.

## 3.2. Results

### 3.2.1. Preliminary analyses

Before testing the study hypotheses, the data were examined for order effects on the outcome variables. Several one-way ANOVAs were conducted with prosocial behavior scores as dependent variables and a) the order of tasks within the three prosocial blocks and b) the order in which the tasks or blocks were presented as predictors. No order effects were detected; thus, the order of administration of the prosocial tasks was not included in any further analyses.

Table 4 shows descriptive statistics including the mean, standard deviation, and range for all analytic variables. At each age, there was considerable variability in prosocial responding across task type, with higher mean scores for instrumental helping at each age than for sharing or compassionate responding. *T*-tests showed that there were no significant differences in prosocial behavior by child gender and maternal education, ethnicity, and family income were not significantly correlated with any of the child outcome measures.

**Table 6**  
Means of prosocial behavior for each task type and latent profile class of the four-class model, Study 2 at T1.

Task	Low Prosocial <i>n</i> = 7	Moderate Prosocial <i>n</i> = 4	High Prosocial <i>n</i> = 41	Frequent Helpers <i>n</i> = 13
Instrumental helping	2.00 <sub>a</sub>	3.50 <sub>b</sub>	5.00 <sub>c</sub>	5.00 <sub>c</sub>
Sharing	2.43 <sub>a</sub>	4.00 <sub>ab</sub>	4.27 <sub>b</sub>	3.90 <sub>b</sub>
Compassionate responding	1.86 <sub>a</sub>	3.75 <sub>b</sub>	4.40 <sub>b</sub>	2.33 <sub>a</sub>

Note: Means for each of the four prosocial groups on each task type with different subscripts are significantly different at the *p* < .05 level. Mean comparisons were tested using Tukey's HSD test.

### 3.2.2. Variable-centered analyses

Correlational analyses were used to assess the consistency in prosocial behavior across type of task at T1. There were moderate to strong and statistically significant bivariate associations between prosocial behavior measures in instrumental helping, sharing, and compassionate responding tasks (*r*'s range from .54 to .38, all *p*'s < .01).

For measures at T2, bivariate correlations between composite scores revealed statistically significant correlations between helping and compassionate responding (*r* = .56, *p* < .0001) and sharing and compassionate responding (*r* = .31, *p* < .05), but there was no association between helping and sharing composites (*r* = .14, *ns*).

Correlational analyses were also conducted between T1 and T2 prosocial tasks in order to assess the stability of prosocial responding over time. Instrumental helping scores were marginally correlated between 4½ and 6 years (*r* = .25, *p* = .08), and sharing and compassionate responding were each significantly correlated at each age (*r* = .35, *p* < .05 and *r* = .42, *p* < .01, respectively).

### 3.2.3. Person-centered analyses

As with Study 1, LPA analysis was used to examine profiles of individual differences in prosocial behavior across different types of tasks. Five models with one, two, three, four, or five latent profile classes were independently examined for T1 and T2 using Mplus.

For the T1 data, each model included three variables—prosocial behavior scores on the instrumental, sharing, and compassionate responding tasks—with scores ranging from 1 to 5.

The fit indices for the T1 LPA models appear in Table 5. Out of the five models, a four-class model provided the best fit for the data, minimizing the AIC, BIC, and sample adjusted BIC indices while maintaining strong entropy, indicating clearly distinguishable classes. Table 6 shows the mean scores for instrumental helping, sharing, and compassionate responding for each of the four T1 latent profiles. The results revealed four profiles including high, moderate, and low prosocial groups, and a fourth group who are high instrumental helpers but less prosocial on the other tasks ("frequent helpers"). For the four profiles, the most frequent group was the high prosocial group consisting of 63% (*n* = 41) of the children with high scores on all three prosocial tasks. The frequent helpers group included 20% (*n* = 13) of the children and was the next largest group.

For the T2 data, each model included three variables as well—composite prosocial scores on the instrumental helping, sharing, and compassionate responding tasks—with each combined score ranging from 1 to 10. Fit indices for the T2 LPA models appear in Table 7. Out of the five models, a four-profile model provided the best fit for the data, minimizing the AIC and BIC while maintaining strong entropy, indicating clearly distinguishable classes.

Table 8 shows the mean scores for instrumental helping, sharing, and compassionate responding for each of the four T2 latent profiles. Similar to T1, four latent classes are distinguished which can be characterized as high, moderate, and low prosocial groups and a fourth group of frequent helpers. The high prosocial group was the most frequent group and included 54% (*n* = 27) of the children with high prosocial scores on all three prosocial task types.

**Table 7**

Fit indices for latent profile analysis models, Study 2 at T2.

Statistic	Number of Profile Classes				
	1	2	3	4	5
Log Likelihood	−338.56	−322.47	−313.17	−300.54	−297.95
AIC	689.12	664.94	654.34	637.07	639.90
BIC	700.59	684.06	681.11	671.49	681.96
ABIC	681.75	652.68	637.16	614.99	612.91
BLRT <i>p</i> -value	N/A	.00	.00	.13	1.00
Entropy	<i>n/a</i>	.97	.91	.88	.90

Note: AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; ABIC = Sample Adjusted BIC; BLRT = Bootstrap Likelihood Ratio Test.

The frequent helpers profile included 16% ( $n = 8$ ) children and was the next largest group.

The stability of LPA profile class membership at T1 and T2 was also examined. Table 9 presents the cross-tabulation of children's LPA profile class membership at each age. Cross time stability was marginally significant ( $\kappa = .16, p = .07$ ). Twenty-five children (49%) showed the same profile class membership at each age. Children who had been in the high prosocial group at T1 were especially likely to be in the same group at T2. Most interestingly, those who were frequent helpers at T1 were less likely to be in the same group at T2, and more than half transitioned to the high prosocial group at T2. These findings parallel the variable-centered bivariate correlations of the prosocial behavior scores over time.

### 3.3. Discussion

Study 2 aimed to better understand the consistency and stability of prosocial responding across tasks in early childhood by observing prosocial behavior in 4½ year-olds and again a year and half later. Due to the maturation of children's cognitive, social, and motivational skills over early childhood, we anticipated greater, but still modest, consistency of individual responding across the different prosocial assessments at 4½ and 6 years of age. Variable-centered analyses revealed generally significant associations between children's responses across tasks and, over time. The results for Study 2 are generally consistent with those of the first study but also reveal differences that reflect developmental changes in prosocial motivation. Consistent with the findings with toddlers but different from other studies discussed earlier, children at ages 4½ and 6 were moderately consistent in their prosocial behavior across tasks assessing instrumental helping, sharing, and compassionate responding despite differences in task requirements.

As with Study 1, in Study 2 we sought to complement to variable-centered analyses by using person-centered analyses to assess whether and how groups of children could be distinguished by the extent of their prosocial responding across tasks. In addition to this variable-centered analysis, the person-centered analysis revealed that children were distinguished into low prosocial, moderate prosocial, and "frequent helpers" groups, similar to the findings of Study 1, with the addition of a high prosocial group in older children who provided assistance on every task. A greater proportion of children fell into the high prosocial group at 4 years of age than at 6.5 years of age. This shift warrants further investigation but may

**Table 8**

Means of prosocial behavior for each task type and latent profile class in the four-class model, Study 2 at T2.

Task	Low Prosocial $n = 4$	Moderate Prosocial $n = 12$	High Prosocial $n = 27$	Frequent Helpers $n = 8$
Instrumental helping	2.75 <sub>a</sub>	6.78 <sub>bc</sub>	9.83 <sub>c</sub>	9.52 <sub>b</sub>
Sharing	4.25 <sub>ab</sub>	6.69 <sub>c</sub>	6.84 <sub>a</sub>	4.20 <sub>b</sub>
Compassionate responding	4.75 <sub>a</sub>	7.23 <sub>b</sub>	8.23 <sub>b</sub>	4.29 <sub>a</sub>

Note: Means for each of the four prosocial groups on each task type with different subscripts are significantly different at the  $p < .05$  level. Mean comparisons were tested using Tukey's HSD test.

**Table 9**

Cross-time stability in LPA profile class membership, Study 2.

T1 Profiles	T2 Profile Classes				Total
	High	Moderate	Low	Frequent helpers	
High	19	8	2	4	33
Moderate	1	2	0	1	4
Low	2	0	2	1	5
Frequent helpers	5	2	0	2	9
Total	27	12	4	8	51

Note: The significance of cross-time stability was tested using Kappa ( $\kappa = .16, p = .07$ ).

reflect the increasing selectivity in prosocial behavior with age (Hay & Cook, 2007). Another difference from the findings of Study 1 was the relatively small numbers of children in the low prosocial and moderate prosocial groups, although the fit indices and the similarity of the composition of these groups at each age (and with 18 months) supports the reliability of these group assignments.

With respect to the longitudinal stability of prosocial responding over 1½ years, in light of other studies reporting modest stability of individual differences in prosocial behavior in young children (see Eisenberg, Spinrad et al., 2015), we hypothesized the same for the stability of responding of children from age 4½ to 6. The variable-centered analysis indicated that measures of each task type were moderately correlated across this period. The person-centered analyses also indicated that children's membership in the four LPA profile classes was modestly stable across 1½ years. Nearly half the children were in the same group at ages 4½ and 6, and this was especially true of those who were high in prosocial responding. The reason for the stability of this group over time is not clear from these findings, but may derive from consistent socialization support for prosociality or personality characteristics of the children. Noteworthy also is that more than half of the "frequent helpers" at the first assessment joined the high prosocial group 1½ years later. The reason for this shift also warrants further investigation.

## 4. Conclusion

The results of these studies support three general conclusions. First, young children respond distinctly to different kinds of prosocial tasks, and this confirms the heterogeneity of responding that is incorporated into the general concept of *prosocial behavior*. Second, despite these differences, children tend to respond consistently across different prosocial tasks and over time, indicating that their responses are not just situation-specific but also reflect characteristics of the child. Third, there are developmental changes in the consistency of prosocial responding indicating that prosocial dispositions become increasingly consolidated over early childhood and provide clues about how the motivation to help others changes with age (see Eisenberg, Spinrad et al., 2015). These findings also add to the research literature documenting the potential benefits of enlisting person-centered analyses to explore developmental questions.

These findings are consistent with those of others (e.g., Brownell et al., 2013; Dunfield & Kuhlmeier, 2013; Dunfield et al., 2011; Svetlova et al., 2010) in showing that young children respond differently to helping, sharing, and empathy/compassionate responding



tasks. This was apparent in both samples, with toddlers as well as older children at two ages more readily providing instrumental assistance to an unfamiliar experimenter than sharing toys or snack items or responding to the experimenter's distress resulting from an accident. These differences may reflect that children, like adults, are more likely to respond prosocially when it is easy and not costly to do so.

A second central conclusion of this study, however, is that despite these differences in task requirements, young children generally responded consistently across them. This was apparent in the findings of each study in two ways. First, in variable-centered analyses, prosocial scores for the three types of tasks, helping, sharing, and compassionate responding, were significantly correlated with each other, contrary to results from some prior studies. Thus, even though instrumental helping tasks were different from compassionate responding tasks, toddlers and older children who scored high on one tended to score high on the other, and these children also tended to share. Second, in person-centered analyses, the variable set at each age yielded distinct groups of children who were distinguished by their levels of helping across tasks. Thus, children's responses were more clearly differentiated according to *child* characteristics (e.g., high, moderate, or low prosocial) across tasks rather than according to *task* characteristics (e.g., empathic vs. nonempathy-based helping). The important and informative exception to this conclusion is the "frequent helpers" group, in which toddlers and older children offered instrumental helping more readily than either sharing or compassionate responding. Further research is needed to elucidate whether this reflects differences in the ease or cost of responding, clarity concerning the adult's needs, or other factors such as the development of specific cognitive (e.g., theory of mind) and social competencies (e.g., emotional intelligence, social problem solving).

Most notably, we found evidence for consistency of individual responding not only across different tasks but also, for the older sample, in repeated assessments separated by one and a half years. To be sure, the finding that nearly half the preschool sample were members of the same profile class at ages 4½ and 6, based on independent LPA analyses at each age, also means that half the sample changed class membership over time. But it is paralleled by significant correlations of scores for each prosocial task across age. This is, moreover, the first study to report this level of consistency in prosocial behavior over such a period using person-centered as well as variable-centered analyses, and is consistent with other research examining the stability of individual differences in prosocial behavior using a variable-centered approach (e.g., Hay, Castle, Davies, Demetriou, & Stimson, 1999; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Notable is the greater stability of children who were in the high prosocial group at age 4½, and the transition of more than half of the "frequent helpers" at this age into the high group by the age of 6. This finding should be replicated because it suggests that children may be developing a stronger motivational foundation for becoming "helpers" across different situations as they reach the end of the preschool years.

This conclusion is supported by the large proportion of children in the high prosocial group at 4½ and 6 years, a group that did not even exist in the toddler sample. A large proportion of children at each age were in the high prosocial group, with an even higher share at age 4½ than age 6, which may reflect the increasing selectivity in prosocial behavior proposed by Hay and Cook (2007). Although it is important to remember that somewhat different tasks were used at each age, these findings – together with the greater longitudinal stability of children in the high prosocial group – suggest that individual differences in prosocial motivation may be consolidating during the preschool years. This would be consistent with other findings from the research on conscience development, particularly the emergence of a "moral self" by age 6 that mediates

parental socialization and later, morally-relevant behavioral outcomes (Kochanska, Koenig, Barry, Kim, & Yoon, 2010). In other words, by the time they reach the age of school entry, some children may be developing a sense of themselves as those who try to be helpful to others. It remains for future research to determine how this aspect of self-concept develops, and whether it might be associated with the "moral self" studied by Kochanska et al.

Indeed, if individual differences in prosocial behavior are becoming consistent across tasks and stable over time in the early years, this warrants further study of the origins of these individual differences. Current research is yielding further clues about the nature of these origins. For instance, several studies have found that young children's emotion understanding, especially as it is facilitated by mother-child discourse that elucidates people's feelings, is associated with early prosocial motivation (Brownell et al., 2013; Newton, Goodman, & Thompson, 2013). There is also evidence that differences in maternal sensitivity, which provide very young children with the experience of an adult facilitating their own goal achievement, is associated with children's prosocial behavior. Future research on these issues is warranted to better understand the factors and mechanisms associated with individual differences in early prosocial behavior and the foundations for enduring prosocial dispositions that warrant better understanding.

Finally, the findings of these studies highlight the potential benefits afforded by using person-centered analyses in studies concerning the identification of different subtypes of children and the stability of these subtypes over time. A number of important findings from this study, such as the identification of a group of children at each age who are frequent helpers but provide less assistance in more complex or costly situations, would not be apparent were variable-centered analyses used alone. These findings are important, in turn, for understanding some of the motivational processes underlying early prosocial responding and providing clues concerning relevant developmental processes. In the end, the conclusion that individual differences in early prosocial behavior are consistent across tasks and time warrants greater efforts to understand the origins of these differences using both variable-centered and person-centered approaches.

These findings should be considered in the context of limitations in the research design. Like most studies in this area, these young children were observed in laboratory settings using procedures designed to resemble naturally-occurring helping situations, but generalization to young children's everyday prosocial behavior is uncertain. In addition, children's responses were observed to an adult in need of help, and children may respond differently in peer helping contexts. The sample size is at the low end of the range that is suitable for LPA analysis, which is why they were supplemented by variable-centered analyses that are more robust to sample size. Finally, the cognitive and self-regulatory skills that may underlie some of the developmental differences we observed were not directly assessed, so it remains for follow-up research to examine their direct and indirect influences on early prosocial responding.

Despite these limitations, these findings contribute to the view that individual differences in prosocial dispositions are emerging in early childhood, and this offers opportunities to explore further the origins of these differences and their prediction to later prosocial conduct and social competencies.

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