Title

Individual Differences in Toddlers' Prosociality: Experiences in Early Relationships Explain Variability in Prosocial Behavior

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Abstract

Latent class logistic regression analysis was used to investigate sources of individual differences in profiles of prosocial behavior. Eighty-seven 18-month-olds were observed in tasks assessing sharing with, instrumentally helping a neutral adult, and instrumentally helping a sad adult. Maternal mental state language (MSL) and maternal sensitivity were also assessed. Despite differing motivational demands across tasks, we found consistency in children's prosocial behavior, with three latent classes: no prosocial behavior, moderate prosocial behavior, and frequent instrumental helping across emotional situations. Maternal sensitivity, MSL, and their interaction predicted toddlers' membership in the classes. These findings evidence moderate consistency in early prosocial behaviors and suggest that these capacities are motivated in early relationships with caregivers.

Keywords: prosocial behavior, maternal sensitivity, maternal mental state language

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Research on very young children's prosocial behaviors – including instrumental helping, sharing, cooperating, and empathic responding – has shown that toddlers are capable of prosocial acts that indicate some understanding of another's intentions and feelings (Brownell, Svetlova & Nichols, 2009; Dunfield, Kuhlmeier, O'Connell, & Kelley, 2011; Rheingold, 1982; Warneken & Tomasello, 2006). Although this research provides important documentation of an impressive and early-emerging human capacity for prosocial behavior, few studies have investigated how interactions with caregivers influence children's early appearing prosociality (see Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013, and Pettygrove, Hammond, Karahuta, Waugh, & Brownell, 2013, for important exceptions). As a complement to other developmental influences on prosocial behavior, the parent-child relationship is an important wellspring for acquiring socially normative behavior, and may be particularly important in early childhood for learning about the intentions and feelings of social partners and enlisting this understanding into prosocial motivation (Thompson, 2012).

This study was designed to examine two issues related to the origins of individual differences in very early prosocial motivation. First, we examined the reliability of individual differences in prosocial behavior to an unfamiliar adult across tasks varying in their demands on the child, including the costs to the child of helping and the emotional demeanor of the person needing assistance. This is the first study to enlist a person-centered analytical approach (latent class analysis) to determine whether toddlers who are prosocial in one situation are more likely to assist in others. The second goal was to examine the association between important aspects of mother-child interaction and individual differences in prosocial behavior in toddlers. Specifically,

we explored the association of two relational processes—maternal sensitivity and mothers' use of mental state language with their toddlers—with variability in toddlers' prosocial behavior.

Prosocial Dispositions

Although researchers have studied very young children in a variety of tasks relevant to prosocial motivation, they have rarely examined the consistency of individual differences in prosocial behavior across tasks. Understanding the reliability of these differences is important, however, because of competing expectations for what we will find. On one hand, some researchers argue for the development of a generalized prosocial disposition owing to the influence of socialization processes that instill a constructive, helpful orientation toward others (e.g., Brownell et al., 2013) or because altruistic motivation is deeply rooted in human behavior (e.g., Warneken & Tomasello, 2009). On the other hand, some researchers believe that prosocial behavior will be task-specific because of the different requirements of alternative prosocial behaviors (e.g., Dunfield et al., 2011; Paulus, 2014). Sharing valued resources like food or toys may be a more demanding behavior for young children, for example, than helping an adult by picking up a clothes pin. Situations involving another's distress require different social-cognitive skills than recognizing obstacles to another's goal-achievement (Thompson & Newton, 2013). Thus the consistency of individual differences in prosocial behavior remains an important issue.

The conclusion of the limited research on this issue is that young children are fairly inconsistent in their responses to multiple prosocial tasks (Dunfield et al., 2011; Dunfield & Kuhlmeier, 2013). In two studies with toddlers and 2- to 4-year-olds, Dunfield and her colleagues found that although children showed modest consistency in responding to multiple trials of a particular prosocial task, they were inconsistent across different types of tasks designed to assess helping, sharing, and comforting. The tasks they used were similar to those of previous

studies and the tasks of the present investigation. These studies suggest that young children are responding to specific characteristics of different types of prosocial tasks, such as the cost that is involved in sharing but not in instrumental helping.

However, the design of these tasks may have contributed to young children's inconsistent responding. Specifically, in the research with toddlers (Dunfield et al., 2011), children were provided with very short windows of time in which to respond (10 sec) which may have reduced the incidence of prosocial responses when toddlers delayed in their reaction to the experimenter's probe (somewhat longer response periods were sometimes used in the follow-up study with older children). In addition, toddlers were credited with prosocial responding only when they fully completed the target behavior. Partial or incomplete responses were not recognized.

In the present study, therefore, we provided children with a longer time to respond (30 to 60 sec depending on task demands), and used a graduated coding system that allowed for partial attempts to assist rather than just a single criterion behavior. By incorporating a longer window for response and a range of prosocially motivated actions, we hoped to capture more of the complexity of young children's prosocial motivation. These procedures were particularly important because we were examining young children's behavior across probes varying significantly in their task demands, such as the difference between having to give up your own resources to assist another (sharing) or respond to another's apparent sadness (compassionate helping) and determining how to assist another's goal-achievement (instrumental helping). Each of these capacities (e.g., discerning another's emotion; sharing resources; identifying another's goals and shared intentionality) is well within the capabilities of the young children we studied, and the tasks have been previously used with children of this age. This was to ensure that individual differences in responding were not due to the tasks exceeding children's

developmental capabilities but rather, we expected, owing in part to aspects of children's social experiences at home.

Maternal Sensitivity

Maternal sensitivity is conceptualized as those parenting behaviors that involve warm, contingent, and supportive responses to children's cues (Ainsworth, Bell, & Stayton, 1974). Children with sensitive parents in infancy tend to be more socially competent than their peers in later childhood (Leerkes, Blankson, & O'Brien, 2009; NICHD, 2003), and some research on older children has supported a connection between maternal sensitivity and children's prosocial behavior showing that more sensitive parents have more prosocial children (Brophy-Herb et al., 2012; Newton, Laible, Carlo, Steele, & McGinley, 2014). Yet, the influence of maternal sensitivity on the development of prosocial behavior in very early childhood remains largely unknown (Eisenberg, Fabes, & Spinrad, 2006).

We propose that maternal sensitivity provides a model for prosocial responding. In a relationship with a sensitive caregiver, children experience a pattern of behavior where people respond to one another's emotions and need states readily and appropriately. Once infants begin to interpret social interaction in terms of shared intentionality (Tomasello & Carpenter, 2007), moreover, they may begin using their caregivers as models of responsiveness to shared goals. Through engaging in the intentions of these caregivers and learning about social interactions from these caregivers, the toddlers of sensitive parents learn that people respond constructively to other people who need something. When toddlers do not experience these repeated, contingent, sensitive interactions, they do not acquire this pattern of behavior and may be less likely to bring an orientation of sharing goals to their interactions with others.

Maternal Mental State Language

Through mother-child conversation, a mother draws the child's attention to people's mental states and emotional experiences. Only a few studies have looked at how mothers communicate about emotional and mental states with very young children, however, and how this, in turn, influences early social development. A recent study by Brownell and colleagues (2013), for example, showed that mothers who elicited more references to emotions from their 18- and 30-month-old toddlers had toddlers who were more prosocial in two different types of situations: sharing and empathic helping. This research supports the hypothesis that mothers who foster an awareness of emotional and mental states in their children through their use of language will have children who are better able to engage in and respond to the psychological states of others, and respond prosocially as a result.

The Interaction between Maternal Sensitivity and Maternal Mental State Language

Although we expected both maternal sensitivity and maternal mental state language to directly predict children's prosociality, there is also reason to expect that the influence of each of these relational processes will interact. More specifically, one relational resource may compensate for lower levels of the alternative relational resource in young children's prosocial motivation. Research evidence for this expectation can be found in previous studies examining relational influences on children's sociomoral behavior. As one illustration, Laible and Thompson (2000) assessed the security of attachment and maternal references to people's feelings during conversations about past instances of the child's moral conduct. These measures (and others) were used to predict individual differences in preschoolers' conscience. They found that these variables had both direct and interactive associations with conscience. Concerning the latter, high amounts of maternal feeling-relevant language predicted conscience development especially for children with insecure attachment relationships, whereas levels of maternal

emotion language were not strongly associated with conscience for children in secure

relationships. High emotion language was associated with conscience especially in

circumstances where the support of a secure attachment was lacking. Findings like these

motivated our exploration of the interaction between maternal sensitivity and maternal mental

state language to determine whether a similar kind of interaction might be revealed.

Present Study

In this study, two avenues for developing prosocial skills – maternal mental state

language and maternal sensitivity – were explored as contributors to individual differences in 18-

month-olds' prosocial behavior. We expected, contrary to some previous research but consistent

with studies with older children, that even toddlers would show consistent individual differences

in prosocial behavior across different types of prosocial tasks. We hypothesized that children

with more sensitive mothers would be more prosocial, that children whose mothers directly

foster an awareness and understanding of mental states by engaging in more mental and

emotional state language would be more prosocial, and that children of less sensitive mothers

would be especially susceptible to their mothers' mental state language. These hypotheses were

tested using latent class logistic regression analysis in order to explore the variance in toddlers'

prosocial behavior using person-centered analyses, rather than variable-centered analyses as in

previous research. Variable-centered analyses focus on the relations between variables, whereas

person-centered analyses focus on the identification of groups of individuals who share common

configurations of variables in which the person is the unit of analysis (Bergman & Magnusson,

1997). Because we are trying to understand individual differences in prosocial behavior, focusing

on the delineation of groups of infants based on their prosocial responses across tasks could

provide new information above and beyond a traditional variable-centered approach.

Methods

Participants

Eighty-seven mother-toddler dyads participated in this study. Toddlers (42 females) were 18-months-old ($M = 18.77$, $sd = .53$). Mothers ranged in age from 21 to 43 years ($M = 32.42$, $SD = 4.40$). Annual household income ranged from under $25,000 ($n = 8$) to over $150,000 ($n = 9$), with an average income of $75,000-$100,000. Most mothers had at least a Bachelor's degree (80%), and all were English-speaking. Children were White (67%), Hispanic (6%), Asian (1%), African American (1%), or of mixed ethnicity (25%). Participants were recruited through local mothers' groups, fliers posted in the community, and through participant referrals. In two bilingual dyads, mothers spoke both languages during the Maternal Mental State Language Task rendering the tasks unable to be transcribed and coded by the coding team and reducing the sample in the final model to 85 dyads.

Procedure

Mother-toddler dyads arrived at the laboratory and spent five minutes in a welcome room with the female primary experimenter, who reviewed the study protocol for the visit with the mother. The primary experimenter, child, and mother then entered a large playroom where a female second experimenter ensured that the child could open a set of cupboard doors and remove the lid of a plastic bin that would be used later in the instrumental helping tasks. In addition, the child was exposed to clothespins and shown how these worked to hold items on a clothesline. After this familiarization period, the first set of prosocial tasks was administered. Following the first set of prosocial tasks, the mother and child were led to a comfortable "living room-style" room where they participated in the book reading task, followed immediately by the

free play task. The second set of prosocial tasks was then administered in the large playroom.

The lab visit concluded with a short interview with the mother.

Measures

      Prosocial Tasks. Each child was observed in six prosocial tasks (see Table 1), two of

each of the following three types: instrumental helping, compassionate instrumental helping, and

sharing. Some instrumental helping tasks were identified as "compassionate" because the

experimenter's sad facial and vocal expression accompanying the probe potentially provided an

additional, emotion-related, incentive to assist. Sets of three tasks (one from each condition)

were administered at a time. The order of the tasks in each set was counterbalanced, as were the

order of the two sets. Throughout all prosocial trials, mothers read magazines while sitting in a

chair in the corner of the room. They were instructed not to interact with their children while the

experimenter was in the room.

      Each trial lasted for either 30 or 60 seconds (see Table 1) or until the child performed the

target behavior. During each trial the experimenter performed the behaviors indicating her need

state described in Table 1 for the duration of the trial. During the first ten seconds of a trial, the

experimenter looked at the point of need (e.g., the tape on the floor, the broken doll, her empty

snack container). For the following ten seconds, the experimenter alternated looks between the

point of need and the child. For the final ten seconds of the instrumental helping conditions, the

experimenter continued alternating looks between the child and the point of need, and exclaimed

something about her need (e.g., "My tape!"). For the final forty seconds of the sharing tasks, the

experimenter continued alternating looks between the child and the point of need and repeatedly

stated her troublesome situation (e.g., "I'm hungry, but I don't have anything to eat.").

If the child performed the target behavior, the experimenter simply stated that her goal was accomplished (e.g., "Now, I can hang up my poster," "Now, I can eat a snack.") but did not thank or praise the child. If the child did not perform the target behavior within the trial, the experimenter stated that she would accomplish the task or solve the situation later (e.g., "Oh, well. I'll do this job later" or "Oh, well. I'll get this fixed later."). At the end of each trial or after the target behavior was performed, the experimenter expressed mildly positive affect.

   Instrumental helping condition. During the instrumental helping tasks described in Table 1, the experimenter expressed confused but relatively neutral affect with a straight mouth, slightly furrowed brow, and non-word vocalizations such as "hmmm," from the point of need (e.g. dropping the tape) until either help was offered by the child or the end of the task. These tasks, and the accompanying facial expressions and vocalizations, were based on the tasks used by Warneken and Tomasello (2006).

   Compassionate instrumental helping condition. In the compassionate instrumental helping condition, the experimenter expressed sadness with a down-turned mouth, narrow eyes, and non-word vocalizations such as "awwww," from the point of need until either help was offered by the child or the end of the task. These tasks, but not the accompanying emotional expressions, were also based on the tasks used by Warneken and Tomasello (2006).

   Sharing condition. For both sharing tasks, the toddler and experimenter were seated across a small, child-sized table from each other. The crackers given to the child were selected by the mother from an assortment of bite sized crackers and cereals, and the mothers were instructed to select something they thought their child would like. On receiving her empty container, the experimenter expressed confused but relatively neutral affect with a straight mouth, slightly furrowed brow, non-word vocalizations such as "hmmm", and later statements of need ("I'm

hungry, but I don't have anything to eat."). These tasks were based on those used by Dunfield and colleagues (2011).

Maternal Mental State Language Task. A book-reading task was designed to assess mothers' use of mental state language with her child. Mothers had five minutes to explore two books with their children. The first book consisted of five pages with a wordless picture story on each page, including two positive emotion stories, one story showing the story character's fear, one sad story, and one story that starts out negatively and ends with positive emotions. Each picture story showed a situation with a cause and emotional effect. For example, in the sad situation, a child is happily taking an ice cream cone from a vendor. He then trips while holding the ice cream cone. Next, the ice cream has fallen on the ground, and finally, the child is crying. All of the vignettes were adapted from the book *Feelings* by Aliki (1986).

The second book consisted of six pages with two photographs per page, one showing a cause and the other showing an effect related to an internal state or emotion. For example, in one photograph a child is holding a spoon in a bowl of yogurt and in the second the child is eating the yogurt with a smile. Again, there were no words in this book. This book was adapted from *Baby Talk* by Dawn Sirett (2005). Mothers were instructed to explore the books with their children as they would at home.

Maternal Sensitivity Task. Maternal sensitivity was assessed during a 10-minute free play interaction with the child and the mother. The mothers were told, "Please interact with your child like you would at home." A standard set of toys was given to the dyad, including a set of four textured rubber balls, a set of ten squeaky blocks, a sound-producing animal puzzle, and a rolling toy with removable gears. These toys included options that were open ended (the balls and blocks) and that were relatively challenging for the child's age (the puzzle and rolling toy).

Coding and Reliability

 Prosocial Behavior. Children's behaviors during the prosocial tasks were coded using a scale similar to that of Vaish, Carpenter, and Tomasello (2009), with the addition of a scale point, "ineffective or partial prosocial acts," because some children tried to solve the experimenter's problems but were unsuccessful or did not complete the instrumental action (e.g., holding out the cracker to the experimenter but not actually releasing it into her outstretched hand). The Prosocial Behavior Scale consisted of five possible scores ranging from disengaged (a score of zero) to most prosocial (a score of four).

  ☐ 4: child responds with the target prosocial act

  ☐ 3: child responds with an ineffective or partial prosocial act

  ☐ 2: child describes or requests information about the situation but does not assist

  ☐ 1: child attentively watches the experimenter (or her situation) for a sustained period (i.e., more than 5 seconds)

  ☐ 0: child watches experimenter (or her situation) for less than 5 seconds

Children were assigned a single score for each trial based on the highest level observed during the trial. Two coders demonstrated reliability with 20% of the sample (☐s ranged from .90 to .96). Scores for the two sharing tasks were significantly correlated ($r = .30$, $p < .01$), but the instrumental helping tasks ($r = .11$, $p = .30$) and compassionate instrumental helping tasks ($r = .14$, $p = .21$) were positively but nonsignificantly correlated. Based on their positive association and conceptual similarity, however, the scores for the two trials of each of the four task types were averaged, such that each child had a single score ranging from 0-4 for each condition.

 Maternal Mental State Language. The book-reading task was coded to assess maternal use of emotion and mental state language. Mothers' talk was assessed according to the coding

scheme used by Taumeopeau and Ruffman (2006, 2008). Mental state terms were coded as emotion, desire, thinking/knowing, modulations of assertion, or other mental state references. The following non-mental states were also coded: physical state, body parts, descriptions of the book images, and links from the book content to the child's life. Exact repetitions of a sentence or phrase did not count towards the mental or non-mental state counts. For example, the use of an emotion term was coded once for a mother who said, "Wow, she looks really sad. She looks really sad," but was coded twice for a mother who used the same word in a new sentence such as "Wow, she looks really sad. She must be sad because her ice cream is dirty." Reliability was established between two coders on 20% of the transcripts for mental state language terms (= . 80). A single variable of maternal mental state language was created by summing all references to emotions, desires, and thoughts/knowledge, which were the most common mental state references in this task.

Maternal Sensitivity. The 10-minute free play interaction was coded using a single global scale of maternal sensitivity ranging from 1 (highly insensitive) to 5 (highly sensitive), including half points (e.g., 2.5 could be assigned). The scale was based on several established conceptualizations and coding systems for maternal sensitivity (Ainsworth, Bell, & Stayton, 1974; Feldman & Masalha, 2010), and involved appraising the promptness and appropriateness of maternal responsiveness to children's cues, supportive behaviors related to children's interests, and matching of pace and affect to children's states. After watching the interaction and taking detailed notes, the following anchor points were used to arrive at a single global score:

 5: Highly Sensitive: *Responds promptly and appropriately to child's cues, displays an affective range and pace that matches the child, and supports and scaffolds the child's interests.*

☐ 4: Sensitive: *Fits the description of the "Highly Sensitive" parent but has occasional mismatches with the child.*

☐ 3: Inconsistently Sensitive: *Occasionally very attuned/responsive, but sometimes quite insensitive—misses important signals, mismatches affect or child's interest, disengages. Overall, the inconsistently sensitivity mother is more sensitive than not.*

☐ 2: Insensitive: *Preoccupied by own agenda, generally does not respond or responds inappropriately, but there may be some matches or glimpses of sensitivity.*

☐ 1: Highly Insensitive: *Unresponsive to the child or responds to the child only when it fits her agenda.*

Adequate reliability was established for two coders on 20% of the sample (κ = .68, 100% of mismatches were within 1 point, 86% of mismatches were within .5 point).

Analytical Approach

Latent class analysis (LCA) was used to define and describe profiles of prosocial behavior based on children's responses to the four prosocial tasks. The best fitting model was determined by considering the interpretability of the results as well as comparing the Bayesian Information Criteria (BIC), Akaike Information Criteria (AIC), and the sample-size adjusted Bayesian Information Criteria (Nylund, Asparouhov, & Muthen, 2007).

Integrating this person-centered approach (LCA) with a variable centered-approach (regression analysis) is useful for elucidating the sources of variance in latent profiles. Each approach alone only captures part of the story: the contributors to a single variable (variable-centered) or the profiles of individuals (person-centered). By combining both in a mixed-model approach, we can predict membership in certain profiles. After establishing the best-fitting LCA model, therefore, a latent class logistic regression model was tested with the two predictors

(maternal sensitivity and maternal mental state language) included as well as two controls: the

child's age and sex. The latent variable of class membership was regressed on these four

variables as well as the interaction between maternal sensitivity and maternal mental state

language in order to examine their joint influence on latent prosocial group membership.

Centered variables were used in order to more easily interpret the interaction effects.

Results

Order Effects

Three one-way ANOVAs were conducted with prosocial behavior scores from each of the

three conditions as dependent variables along with a) the order of affect presented (i.e. whether

the experimenter in the first task was neutral or sad), b) the order of tasks within the two

prosocial task sets, and c) the order in which task sets were presented. None of these ANOVAs

indicated any order effects on prosocial outcomes, so the order of administration of prosocial

tasks was not included in any further analyses.

Descriptive Statistics

Table 2 provides means, standard deviations, and correlations between all of the variables

included in the present analyses, including the prosocial behavior scores in the three prosocial

conditions, maternal sensitivity, and maternal mental state language as well as age and sex.

Behavior in some but not all of the prosocial conditions was correlated. In addition, maternal

sensitivity and maternal mental state language were correlated.

Latent Class Model

LCA was used to establish whether or not there were reliable individual differences in

prosocial behavior in this study. Models with 1-4 latent classes were tested. Comparisons of

model fit are presented in Table 3. Based on commonly used indicators of model fit, including

AIC, BIC, and sample-adjusted BIC, the model with three classes had the best fit.

The three resulting classes were labeled Not Prosocial, Moderately Prosocial, and

Frequent Helpers (see Table 4 for means). The Not Prosocial group had low scores in all three

prosocial conditions suggesting that individuals in this class might be describing the situation but

were likely to be merely watching the experimenter in most of the trials. The Moderately

Prosocial class had prosocial scores around or below the midpoint on the prosocial behavior

scale indicating they were likely to be describing the situation or trying to assist. The Frequent

Helpers class had similar scores to those of the Moderately Prosocial class for the more

challenging situation involving sharing, but on the instrumental helping tasks they were the most

likely to provide assistance.

Latent Class Logistic Regression Analysis

The results from the latent class regression analysis are presented in Table 5. Children in

the Frequent Helpers class were more likely to have sensitive mothers than those in the other two

classes. Frequent Helpers were also more likely to have mothers higher in mental state language

use than those in the Moderately Prosocial class. The interaction between maternal mental state

language and sensitivity significantly differentiated the Frequent Helpers from those in the Not

Prosocial group, suggesting that maternal use of mental state language moderated the influence

of maternal sensitivity. This interaction is presented in Figure 1. In estimating the probability of

membership in the Frequent Helpers class versus the Not Prosocial class, the interaction plot

shows that children with mothers high in maternal sensitivity were relatively more likely to be in

the Frequent Helpers group regardless of maternal use of mental state language, and that children

whose mothers are less sensitive were *more* influenced by maternal use of mental state language,

increasing the likelihood of membership in the Frequent Helper class. Thus, if the mother was

low in sensitivity but high in mental state language use (rather than low in both), the child was

more likely to be in the Frequent Helper class than the Not Prosocial class. None of the

predictors (maternal sensitivity, maternal socialization, or their interaction) differentiated the Not

Prosocial class from the Moderately Prosocial class, suggesting that these predictors were

especially important in differentiating consistently actively prosocial children, particularly in

instrumental helping situations, from others who were less consistently helpful.

Discussion

This study was designed to accomplish two goals. The first was to examine the reliability

of individual differences in toddlers' prosocial behavior across different kinds of prosocial tasks

varying in their difficulty, such as the cost to the child of helping and the emotional demeanor of

the recipient of assistance. The latent class analysis showed that prosocial behavior was fairly

consistent across tasks, and children fit into one of three classes—those exhibiting no prosocial

behavior, those moderate in prosocial behavior, and those more frequently engaging in prosocial

action. The children exhibiting the most prosocial behavior were most consistently prosocial in

situations requiring instrumental helping and compassionate instrumental helping. These are

tasks requiring little cost and a straightforward determination of the circumstances frustrating the

recipient's goals (Thompson & Newton, 2013), although assistance was diminished when the

child also had to consider the experimenter's sad demeanor, potentially due to the increased

cognitive and motivational demands of interpreting the cause of an unfamiliar adult's sadness.

While these children were also occasionally prosocial in the sharing situations, the prosocial

profiles did not indicate that scores for this task were higher in the most prosocial group

compared to the moderately prosocial group. In a sense, this would be theoretically expected –

fewer younger children are likely to assist another when there is a cost to doing so – and is consistent with the findings of other studies using similar procedures (Svetlova, Nichols, & Brownell, 2010). In general, the LCA analyses suggest that although children in the Frequent Helpers group and the Moderately Prosocial group were similar in behavior on some tasks, children in the Not Prosocial group were distinct from each. Importantly, this evidence for moderate consistency of responding across tasks derives from research procedures that, by contrast with prior research finding inconsistent responding, allowed for a longer window of responding and incorporated partial responses into the evaluation of children's behavior.

The second goal of this study was to examine two potential sources of variability in 18-month-olds' prosocial behaviors: maternal sensitivity and mothers' use of mental state language with their toddlers. Consistent with our expectations, mothers' sensitivity in interactions with their 18-month-olds differentiated between the most prosocial children and less prosocial children groups. This is consistent with a broad research literature documenting the association of sensitive parental responsiveness and a range of social and emotional competencies in children, and also with our specific expectation that maternal sensitivity enlists young children into a relationship of mutual responsiveness to one another's emotions and needs (Hastings, Utendale, & Sullivan, 2007; Thompson, 2006) Indeed, the situations in which we observed toddlers in this study are similar to those in which these children are likely to have themselves been assisted by their sensitive mothers: helping in the child's goal achievement, sharing resources, and responding compassionately to the child's distress.

More specifically, we expect that sensitivity has these effects as young children are beginning to interpret maternal behavior from the orientation of shared intentionality, in which joint behavior is viewed in the context of shared goals. As a consequence, young children also

become oriented toward sharing the goal states of others, even friendly but unfamiliar experimenters. An important implication of this view is that differences in maternal sensitivity at earlier ages (e.g., during the first year) would *not* be expected to predict later prosocial behavior unless sensitivity was maintained as children reach the toddler period and become capable of interpreting the mother's sensitivity in a psychologically more sophisticated manner, such as in terms of shared goals, emotions, and intentions. This developmentally-graded hypothesis views the influence of sensitive responsiveness relative to the young child's developing social-cognitive skills for interpreting maternal behavior, and merits exploration.

Maternal use of mental state language also differentiated between the children who were moderately prosocial and those exhibiting the most prosocial behavior. This suggests that the use of mental state language may be engendering in young children attention to others' needs. Perhaps the most striking difference between children in the moderately prosocial group and the highly prosocial groups was that the children in moderately prosocial group were still socially engaged with the unfamiliar adult—they were just less likely to respond in actively prosocial ways. Thus, mothers' use of mental state language may have been especially important for motivating children to respond constructively to others' needs and emotional states. Past research examining the association between maternal use of mental state language and children's emotion understanding has shown just that (Taumoepeau & Ruffman, 2006), and toddlers' emotion understanding is associated with prosocial behavior (Newton, Goodman, & Thompson, 2013). Thus, for children who are motivated to engage with new social partners, having a mother who guides their awareness to others' emotions and needs may be an important influence on the growth of prosocial skills.

We also found, consistent with earlier research, an interaction between maternal

sensitivity and maternal mental state language such that while both variables were predictive of

children's prosocial behavior, their interaction was also important, especially in distinguishing

the children who were Frequent Helpers from those in the Not Prosocial group. Consistent with

our expectations, this interaction suggested a compensatory influence, such that children of

mothers with low sensitivity but who used higher amounts of mental state language showed

higher levels of prosocial behavior than children of insensitive mothers who used little mental

state language. By contrast, differences in maternal mental state language had little significance

for the prosocial behavior of children in sensitive relationships. These findings, taken together

with other research conclusions, suggest that there are multiple relational resources available to

young children in the development of positive, constructive motivational orientations to others.

If one such resource is lacking, it appears that others may be helpful in making up for it.

There are limitations to these findings. The sample was not as socioeconomically or

ethnically diverse as would warrant confident generalizations to other populations. There is also

the question of whether the associations in this study truly reflect processes relevant to the

development of prosocial motivation, or instead more limited processes, such as child

compliance to implied expectations. Concerning the latter, however, it is apparent that children

in this study had many options in their responses to the experimenter's need for assistance, as

reflected in our coding scheme and the range of scores for children in each of the three prosocial

groups. Our concern is not that these behaviors do not reflect prosocial motivation (at least as it

should be viewed in a developmentally appropriate manner) but that many other influences,

including temperamental characteristics, aspects of the experimental context, child effects, and

other factors may obscure better understanding of the influences that contribute to the early

emergence of constructive social motivation in very young children (Eisenberg, Fabes, & Spinrad, 2006). In addition, genetic factors could explain the associations between prosocial behavior and maternal mental state language or maternal sensitivity; it is possible that parents who are more attuned to others' needs pass this trait on to their children genetically rather than through socialization. The present study cannot rule out this explanation, though it is likely that prosocial behavior (like most complex psychologically driven behavior) is influenced both by genetic predispositions and experience. Finally, our failure to find gender differences, consistent with other studies with very young children, is different from studies yielding gender differences in older children (Eisenberg, Fabes, & Spinrad, 2006), and this merits future exploration.

The results of this study add further understanding to the motivational origins of prosocial behavior. First, the consistency of individual differences in prosocial responding supports the view that a generalized motivation toward others is early developing and is apparent in toddlers' responses to the needs of unfamiliar adults. Second, maternal sensitivity and maternal mental state language appear to have different but complementary (and potentially compensating) motivational influences on toddlers' prosociality. Maternal sensitivity draws young children into a relationship of mutual responsiveness that may be especially influential as children acquire an awareness of shared intentionality. Maternal use of mental state language sensitizes young children to others' needs and emotions and the value of responding constructively to them. The finding that these maternal influences may interact in a compensatory manner suggests that multiple incentives to prosocial motivation develop in the course of early mother-child relationships. Further understanding of how these social influences interact with the young child's developing understanding of others' internal states offers promise for clarifying how the earliest incentives to assist others emerge in the early years.

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Table 1. Descriptions of the prosocial tasks.

Task Type	Task Name	Description	Target Behavior	Length
Instrumental Helping	Tape (or Clothespin)*	Experimenter tried to hang a poster on the wall and dropped the tape on the floor. The experimenter reached for the tape on the floor while continuing to hold the poster to the wall.	Placing the tape in the experimenter's outstretched hand.	30 seconds
	Cupboard (or Bin)*	Experimenter tried to put a bowl into a cabinet, but the cabinet doors were closed and her hands were full. The experimenter bumped into the cupboard doors with the bowl.	Opening the cupboard door.	30 seconds
Compassionate Instrumental Helping	Clothespin (or Tape)*	Experimenter tried to hang a cloth on a clothesline and dropped the clothespin on the floor. The experimenter reached over the clothesline for the clothespin on the floor and looked sad.	Placing the clothespin in the experimenter's outstretched hand.	30 seconds
	Bin (or Cupboard)*	Experimenter tried to put a blanket into a plastic bin, but the lid was on the bin and her hands were full. She bumped into the lid of the bin with the blanket and looked sad.	Removing the lid from the bin.	30 seconds
Sharing	Toys	Toddlers were given a container with six toy farm animals inside, and the experimenter was given an identical container with no toys inside. The experimenter looked into and shook her empty container.	Placing a toy in the experimenter's container or hand.	60 seconds
	Snack	Toddlers were given an open container with eight crackers inside, and the experimenter was given an identical container with no crackers inside. The experimenter looked into and shook her empty container.	Placing a cracker in the experimenter's container or hand.	60 seconds

* The children who were observed in the Tape and Cupboard tasks in the Compassionate Instrumental Helping condition were observed in the Clothespin and Bin tasks in the Instrumental Helping condition and vice versa. No child experienced multiple trials of the same task, and every child was observed in all six tasks.

Table 2. Descriptive data and bivariate relations between the variables.

	1	2	3	4	5	6	7	*M (SD)*
1. Instrumental Helping	---	.46**	.25*	.24*	.11	.09	-.03	2.39 (1.05)
2. Compassionate Instrumental Helping		----	.16	.26*	.02	.17	.07	2.27 (1.03)
3. Sharing			---	.17	.11	.07	.00	2.06 (.83)
4. Maternal Sensitivity				---	.31**	.06	.08	3.35 (1.12)
5. Maternal Mental State Language					---	.08	-.10	14.16 (6.30)
6. Child Age (in Days)						---	.19	563.31 (15.81)
7. Child Sex[a]							---	.48

*p < .05, **p < .01, ***p < .001
[a] 1 = female and 0 = male for child sex

Table 3. Fit indices for latent class analysis models with one through four latent classes.

	Number of Classes			
Statistic	1	2	3	4
Log Likelihood	-359.55	-344.81	-323.11	-321.40
AIC	731.09	709.62	674.23	678.80
BIC	745.89	734.28	708.75	723.19
ABIC	726.96	702.73	664.58	666.39
BLRT p-value	N/A	0.00	0.00	1.00
Entropy	N/A	0.64	0.97	0.93

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

Table 4. Means of prosocial behavior for each task type, together with maternal variables, in the full sample and in each latent class from the three-class model.

Task	Full Sample N = 87	Not Prosocial n = 26	Moderately Prosocial n = 41	Frequent Helpers n = 18
Instrumental Helping	2.39	1.11$_a$	2.58$_b$	3.89$_c$
Compassionate Instrumental Helping	2.27	1.79$_a$	2.24$_a$	3.10$_b$
Sharing	1.98	1.75$_a$	2.23$_b$	2.24$_{ab}$
Maternal Sensitivity	3.35	2.96	3.24	4.02
Maternal Mental State Language	14.46	14.22	13.07	16.55

Note: Means for each of the three prosocial groups on the Instrumental Helping and Compassionate Instrumental Helping tasks with different subscripts are significantly different at the $p < .05$ level. Means for the three prosocial groups on the Sharing task with different subscripts are different at $p < .10$. Mean comparisons were tested using Tukey's HSD test.

Table 5. Estimated odds ratios (OR) of prosocial class membership in relation to child sex, child age, maternal sensitivity, and maternal socialization in a latent class logistic regression model

Variables	Class 1 vs. Class 2 OR (95% CI)	Class 2 vs. Class 3 OR (95% CI)	Class 1 vs. Class 3 OR (95% CI)
Child Sex	0.58 (0.20-1.68)	1.77 (0.50-6.22)	1.03 (0.27-3.93)
Child Age	1.02 (0.99-1.05)	0.99 (0.95-1.02)	1.01 (0.97-1.05)
Maternal Sensitivity	1.39 (0.85-2.27)	**2.49 (1.17-5.31)***	**3.45 (1.63-7.33)*****
Maternal Mental State Language	0.95 (0.86-1.03)	**1.17 (1.02-1.33)***	1.10 (0.96-1.27)
Sensitivity x Language	0.99 (0.92-1.05)	0.91 (0.81-1.01)	**0.89 (0.80-1.00)***

*$p < .05$, ***$p < .001$

Note: Class 1 = Not Prosocial, Class 2 = Moderately Prosocial, Class 3 = Frequent Helpers

Figure 1. Interaction effects from the latent class logistic regression analysis between maternal sensitivity and maternal mental state language on children's probability of class membership.