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The Influence of Temperamental Traits and Prosocial Practices used by Parents in Prosocial Behavior in Toddlers over Time

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Samenvatting

De huidige studie onderzoekt hoe negatieve temperamenttrekken van peuters en prosociaal opvoedingsgedrag van ouders bijdragen aan prosociaal gedrag in peuters. Bovendien zijn deze potentiele bijdragers onderzocht als mogelijke gelijktijdige en longitudinale voorspellers van prosociaal gedrag. De data is afkomstig van een longitudinale studie met drie meetmomenten, genaamd 'The Little Helpers Project'. Zowel metingen van ouders, begeleiders van het kinderdagverblijf, als een geobserveerde meting zijn meegenomen in de studie. Peuters tussen de 16 en 24 maanden oud (N = 94) participeerden in een taak waarin instrumenteel helpen, empathisch helpen en delen werd gemeten. Ook rapporteerden de begeleiders en moeders over het prosociale gedrag van de peuter. Moeders rapporteerden over ouderlijke opvoedings-gedragingen gericht op prosociaal gedrag en over het temperament van hun peuter. Uit de resultaten blijkt dat prosociale opvoedingsgedragingen van ouders het prosociaal gedrag van peuters voorspellen, wanneer prosociaal gedrag één jaar werd geobserveerd. Negatieve temperamenttrekken waren (negatief) gerelateerd aan prosociaal gedrag, zowel gelijktijdig als longitudinaal, gerapporteerd door moeders. Er is geen interactie-effect gevonden van prosociaal opvoedingsgedrag en negatief temperament op prosociaal gedrag. Sterke en zwakke punten van het onderzoek, eveneens suggesties voor vervolgonderzoek, zijn in de discussie opgenomen.

Abstract

The current study explored how temperamental traits and prosocial practices used by parents, contribute to variability in early-appearing prosocial behavior in toddlers. Moreover, potential sources of variability in early prosocial behavior were explored and examined as additional possible predictors of prosocial behavior concurrently and longitudinally. Using data from a three-wave, longitudinal study called *The Little Helpers*, both observed, parent- and teacher-reported measures were taken into account. Toddlers between 16 and 24 months-old (N = 94) were administered prosocial behavioral tasks (measuring instrumental helping, emphatic helping and sharing), as well as parent- and teacher-reported prosociality at home and in the classroom. Mothers filled in questionnaires about their parenting practices on prosocial behavior and their toddlers' temperament. Prosocial practices predicted prosocial behavior one year later, when prosocial behavior was observed. Negative temperamental traits related (negatively) to mother-reported prosocial behavior, both concurrently and longitudinally. No interaction effect of prosocial practices and negative temperament was found. Strengths and limitations of the current study, and suggestions for future research are discussed.

While still learning how to walk or talk, children in their first, second and third year of life are attentive to their own and other's internal states and begin engaging in behaviors such as helping, sharing and cooperating. These children are showing prosocial behavior, which is generally defined as voluntarily acting on behalf of others to enhance their welfare, often out of caring and concern for others (Eisenberg, Fabes, & Spinrad, 2006). Under the right conditions, being only in their first or second year of life, children will help others (Liszkowski, 2005; Warneken & Tomassello 2007), cooperate with another to achieve a shared goal (Brownell, Ramani, & Zerwas 2006) or show concern when someone is visibly upset or in pain (Nichols, Svetlova, & Brownell, 2009).

However, not all kids will show prosocial behavior at the same time. The second year of life is witness to major developmental change in prosocial behavior (Svetlova, Nichols & Brownell, 2010). *Instrumental helping*, such as assisting another in achieving an action based goal (e.g. getting something out of reach), seems to be significantly easier and appears by 12-14 months of age. *Emphatic helping*, or comforting, such as giving a hug when someone is in pain or giving a blanket when someone is cold, emerges somewhat later between 18 and 24 months of age. Svetlova, Nichols and Brownell (2010) also found that helping was easier when it did not require children to give up something that belonged to them, at both 18 and 30 months of age. Children who were 18 months old required significantly greater communicative support and scaffolding from an adult to show prosocial behavior.

With the growing number of demonstrations of infants and young children's prosociality, much less attention has been paid to the question of why some children are likely to behave more prosocially than others. While all typically developing children achieve the basic abilities to help, share, comfort and cooperate, at any given age, some children may be more advanced than others. One contributor to these differences in competence might be parents' *socialization* of their children's responses to others emotions and behavior (Brownell, 2013; Denham et al., 2015; Eisenberg et al., 2015). Another source may be dispositional differences, or *temperamental traits.* The current study investigates the roll of parental prosocial socialization and temperament in understanding individual differences in toddlers' prosocial behavior. Both possibilities are considered more fully below.

Parents' socialization of young children may influence how they come to care about other people's emotions and needs. It can be considered as an event in which parents assist or aid children to adopt the values of their particular social context, rather than one in which they impose those values on their children (Grusec, 2010). Socialization of prosocial behavior can operate through many pathways. It can act on children's motivation to behave prosocially,

contribute to the social understanding to respond prosocially or shape the social and regulatory skills needed to implement a prosocial response (Brownell, Svetlova, Anderson, Nichols & Drummond, 2013). Brownell and colleagues (2013) sum up specific processes through which socialization operates on prosocial behavior. It varies from modeling, other-oriented reasoning, conversation about emotions and prosocial behavior, to empathic, positive and responsive caregiving. Gross and colleagues (2015) reveal that parents use a variety of socialization strategies to encourage young children's development of prosocial behavior, including scaffolding, negotiation and praise.

Although some investigators argue that the early development of prosocial behavior is not influenced by socialization, because infants are presumed to be too young to be affected by this parental input (Dunfield et al., 2011), other researchers argue that even in infancy and toddlerhood, socialization influences prosocial behavior. For example, Brownell and colleagues (2013) found that while reading picture books with their toddlers, parents who more often asked children to reflect on and talk about the emotions depicted in the books had children who helped and shared more quickly with an adult. Children who were 24 months old shared more frequently and generously, while 18 month-olds required substantial scaffolding from the parent to behave prosocially. In another example, Hammond (2011) found that the more parents appropriately scaffolded toddlers' helpful participation in a household-like task, the more quickly these children helped an experimenter in an independent set of prosocial tasks. However, in contrast to these results, Warneker and Tomasello (2013) found that 24 month-olds who were actively directed by a parent or another adult to help an experimenter, did not help any more than children whose parents simply watched them, or were absent. They also showed that 20 month-olds who were materially rewarded for helping an adult, were less likely to help later when the rewards were discontinued. These mixed results motivates the current study to further investigate the relation between parental socialization practices on prosocial behavior, to add to the existing research on this topic.

A second source which may contribute to prosocial behavior in young children, may be the suggested existence of an "empathic disposition" or individual temperamental differences. That is, some young children are dispositionally more likely than others to empathize with others in distress, regardless of their early prosocial practices they have experienced (Nichols et al., 2009). Temperament can be described as biologically-based, early appearing, and relatively stable differences in response to salient stimuli and in self-regulation of these responses (Grusec, 2010). A number of authors have stressed the role of

temperamental factors, specifically difficult temperament, in explaining individual differences in toddlers' helping and comforting (e.g., Thompson & Newton, 2013). Although various definitions of difficult temperament have been used, since Thomas and Chess (1977) initial suggestion there is quite a general agreement that perceived frequency and level of *negative affect* are central (Bates, 1980). Children with a negative affect can be described as the tendency to be easily distressed; or as a general dimension, which encompasses emotions of anger, fear, worry, discomfort, frustration, sadness, frustration, irritability and the lack of inhibitory control (Van den Bergh & Ackx, 2003; Putnam, Ellis, & Rothbarth, 2001). For example, fearfulness in relation to prosocial behavior has been discussed throughout research: Schuhmacher, Collard and Kärtner (2017) show that toddlers' temperamental fear was associated with toddlers' comforting at 18 months old. Spinrad and Stifter (2006) found that fearfulness assessed at 10 months of age predicted greater concern toward a distressed adult at 18 months of age. In contrast, fearfulness observed at 16 months of age was associated with reduced emphatic concern for another's distress at 30 months (van der Mark, IJzendoorn & Bakermans). On the on the other hand, Gross et al. (2015) found that fearfulness, shyness and social fear were not associated with prosocial behavior. In another study, internalizing components of negative affectivity, such as fear and sadness, were found to be related to prosocial traits – whereas irritable traits, such as anger and discomfort, were related to anti-social traits in a group of 6- to 7 year olds (Rothbart, Ahadi & Hershey, 1994). Also, 18 month-old children who were more cautious, and tended to observe their peers rather than to actively play with them, were more advanced in social understanding (Moore et al., 2011). Thus, findings regarding the role of negative affectivity in toddlers' helping and comforting seem inconsistent. These inconsistent results could reflect variation in how negative temperamental traits were measured, and so far it seems that not all negative temperamental traits have been studied in the relation with prosocial behavior. Therefore, one aim of the current study is to investigate the association of other negative temperamental traits.

Another reason for the mixed results, could be that children respond differently to the same parenting behaviors (e.g. prosocial practices). Several studies have shown that effects of parenting on child development depend on children's temperament (e.g. Rothbart & Bates, 2006; Karreman, van Tuijl, van Aken, & Deković, 2009). The first to recognize this phenomenon were Thomas and Chess (1977) who argued that the match between temperament and parenting, matters how children are shaped by parenting. So, children vary in how sensitive they are to parenting and other environmental influences (Pluess, 2015).

Different models exist on the individual differences in environmental sensitivity. The

current study focuses on three, namely the diathesis-stress, differential susceptibility and vantage sensitivity model. According to the *diathesis-stress model* (Zuckerman, 1999), some individuals possess characteristics that make them (more than others) vulnerable to risks and dangers in their environment, to harsh circumstances they encounter, or to poor-quality by parenting. These predisposing vulnerabilities can be behavioral in character (e.g. difficult temperament), genetic or physiological. When activated by a stressor, the potential of the predisposition will be transformed into the presence of psychopathology. The *differential susceptibility model* (e.g. Belsky, Bakersmans-Kranenburg, & van IJzendoorn, 2007) suggests that the individuals who are most vulnerable to environmental stressors may be the ones who benefit most from environmental support. Belsky and colleagues (2007) found that this also counts for parenting practices: children high on negative emotionality or with a more difficult temperament were more susceptible to both negative and positive parenting. Finally, according to the *vantage sensitivity model* (Pluess & Belsky, 2013), some individuals benefit disproportionally from enriched environments, whereas others gain little to nothing from enriched environments. Interestingly, in their meta-analysis, Slagt, Dubas, Deković and van Aken (2016) found support for the differential susceptibility model. They found that children with a more difficult temperament and children high on negative emotionality were more vulnerable to negative parenting, but also gained more from positive parenting than children with an easier temperament. Associations between positive parenting and positive child adjustment were comparable in strength compared with associations between negative parenting and negative child adjustment. Difficult temperament, as well as negative emotionality appeared as susceptibility markers, and were reflected in externalizing and internalizing problems and in social and cognitive competence. Associations between positive parenting with social competence (such as showing prosocial behavior, empathy and conscience) as well as cognitive competence were stronger for children with a more difficult temperament. For negative emotionality, associations of both negative and positive parenting with negative child adjustment were stronger for children high on negative emotionality, regardless of the outcome domain. Associations between positive parenting and cognitive competence were stronger at high levels of negative emotionality. Associations of negative parenting with social competence as well as with cognitive competence were stronger for children higher on negative emotionality.

From the results of this meta-analysis, it could be speculated that children with a more negative emotionality or difficult temperament could also be gaining more from prosocial practices that parent use, but will also be more vulnerable when parents use less prosocial

practices. In this meta-analysis, parenting is described in terms of warmth and control and child outcomes were broad in terms of child adjustment (internalizing, externalizing problem behavior and social and/or cognitive competence), and not specific to prosocial parenting practices or helping and sharing behavior. Another aim of the current study is to add to the existing literature, by exploring whether toddlers with a more negative temperament will be more susceptible to prosocial practices and will therefore show more prosocial behavior compared to children with an easier temperament.

The present study draws on a three-wave longitudinal study of infants, toddlers and their mothers and take parental prosocial practices and temperamental traits into account in analyzing individual differences in toddler's emerging prosociality. Both observational assessments involving instrumental and emphatic helping tasks (adapted from Svetlova, Nichols & Brownell, 2010) and sharing tasks (adapted from Brownell, Iese, Nichols & Svetlova, 2013), mother- and teacher-reports on prosocial behavior were included.

First, we examine whether prosocial practices relate to toddlers actual prosocial behavior. Based on previous studies that found a positive link between prosocial practices and less antisocial behavior, more prosocial behavior or other positive child outcomes (Brownell, 2013; Grusec, 2010; Hammond, 2011), we expect to find a main effect for prosocial behavior. This means that toddlers of parents who use more prosocial socialization will show more prosocial behavior at Time 1 and will also show more increases in prosocial behavior from Time 1 to Time 3.

Second, we investigate the association between the children's temperamental traits of negative emotionality on prosocial behavior. However, findings on the role of negative affectivity in toddlers prosocial behavior are still limited, and the results so far are inconsistent. A reason for the inconsistent results could be that children respond differently to the same parenting behaviors and that children with a more difficult temperament are susceptible to both negative and positive parenting. A third aim of this study is therefore to also investigate whether there appears a moderation interaction effect of the toddler's difficult temperament on the link between prosocial practices on the toddler's prosocial behavior. We expect to find that toddlers with a more difficult temperament will show less prosocial behavior when parents use more prosocial practices compared to children with an easier temperament. However, we also expect that the same toddlers will also benefit (show more prosocial behavior) when prosocial practices are relatively high, compared to children with an easier temperament.

Methods

Participants

Children were drawn from a three-wave longitudinal study called "Little Helpers Project" among 116 Dutch toddlers from 16 to 26 months old. Children were tested every six months and their mothers and daycare teachers were asked to complete questionnaires. The toddlers were recruited from 23 daycares in the Netherlands. Printed consent forms and a letter describing the study were given to all of the parents. Parents could return the forms, giving their permission for themselves and their children to participate in the study.

For the current study, the first wave (Time 1) and third wave (Time 3) were used. The final sample consisted of 94 toddlers for Time 1, of which 46 boys (M_{age} = 21.4 months, *SD* = 3.40) and 48 were girls (M_{age} = 21.4 months, *SD* = 3.48). At Time 3, approximately one year later, 77 toddlers participated. Most of the toddlers were born in the Netherlands (99%). Parents were born in the Netherlands (92%), Surinam (1%), Antilles/ Aruba (1%) or another country (6%). Most parents were married and lived together, or were not married but lived together (34%) and came from a middle-class background.

Using an Independent T-tests, bias checks were run to compare first wave data of toddlers who dropped out in the third wave (*N* = 13) to those who stayed in the study. No significant differences on the variables used in the present study were found ($p > .05$).

General procedure

Procedures were similar for each wave. There was a warming up period in which the experimenter (E) and the assistant experimenter (AE) observed the children. After this, the child (C) was escorted to a separate room for the experiments. All sessions were video-recorded. In all three waves, there was a sharing task, an instrumental helping task and an empathic helping task. Within each study, all tasks were administered to each child starting with the sharing task. The other tasks were counterbalanced in order. On each of the helping tasks E delivered a standard series of cues, which became progressively more detailed and specific about sharing or E's needs or desire. After each trial, the toddler was thanked for playing the game with the experimenter. Details for each task are provided below.

Sharing task

The sharing task was the same as conducted in the study of Aknin, Hamlin & Dunn (2012). In this task, the toddler received treats and was asked to give them to a puppet. The

tasks started with an introduction/ warm-up phase in which C is introduced to the four stuffed animals (mouse, rabbit, cat and panda) who "like treats". In front of each of the animals, a bowl was placed. C received his/her own bowl and was told that the animals have their own bowl for the snacks. E gave one snack to each of the animals and shoves the treat into the bowl while making the sound "*Mmmmm jamjamjam*" which indicated that the animal "ate" the treat. After this, E gives a treat C as well. Then, E took the general bowl with 2, 4 or 8 treats (different condition for each child) and asked "*Do you want to give everyone a treat from this bowl? Put a treat in everyone's bowl. One for mouse, one for rabbit, one for panda and one for you*". If C hesitated, E prompted the action by (a) repeating to "shar a treat with [puppets]" (b) pointing at the treat then the puppets bow, (c) take treat out of the general box and wait for C to take it, (d) telling C their mom approves, (e) give the treat to the child and (f) if C still hesitates, E finally shared the treat with the puppets. The prompts were used only if needed and five seconds were taken between each prompt. Then, the animals were placed out of C's sight and the bowls (except C's bowl) were cleared away.

In the formal experiment, children were introduced to another stuffed animal called "Monkey", and were encouraged to touch or pet Monkey. Monkey received his own bowl and E told C that she "found" more treats, and gave it to C. Then, three conditions (1, 2 and 3) were played out (in randomized order across children). E grabbed the treat out of the general bowl. In condition 1, E gave the treat to Monkey. In condition 2, E asked C "do you want to give this to Monkey?". In condition 3, E told C "*I don't see any treats anymore. Do you want to give one of your own treats to monkey?*".

Instrumental Helping Task

The instrumental helping task was adapted from the action condition 'wrapping task' conducted by Svetlova, Nichols & Brownell (2010). E took four cubes and put them on the table. Then E told C *"I have to wrap these cubes with tissues. There they are!"*. E grabbed the tissues on the side of the table and placed one of the tissues where it was visible and reachable for C. E then wrapped the tissues around the cubes and left one cube unwrapped and gave the cues as presented in Table 1.

Empathic Helping Task

The emphatic helping task is the same as conducted in the "empathic helping" task (Svetlova, Nichols & Brownell, 2010). E told C *"I'm going to show you something",* and walked to a blanket and said *"This is my blanket. If I put this around my shoulders, it will*

keep me warm. The blanket will keep me warm". E then sat down and put the blanket visible and reachable for C. E told C that she'd been looking for a stuffed animal, called "Beertje" and then suddenly finds Beertje and gives it to C to play with for 30-60 seconds. After this, E gave C a series of prompts in order to get the blanket (see Table 1).

Questionnaires

For each wave, mothers and teachers filled out questionnaires about the child's prosocial behavior. Questionnaires about the prosocial practices and temperament were only filled in by mothers in the first wave.

Prosocial behavior. Mothers and classroom teachers rated the child's prosocial behavior using two subscales of the Infant-Toddler Social and Emotional Assessment (ITSEA; Briggs-Gowan & Carter, 1998), by indicating to what extent the statements apply to the child. Answers ranged from 0 to 2 (0 = Rarely; 1 = Sometimes; 2 = Often; and X = Never been in that situation). Eight items were about compliance (e.g. *puts toys away after playing* or *helps with dressing*). Five items were about prosocial peer interactions (e.g. *take turns while playing with others* or *ask for things nicely when playing with other children*) and seven items about empathy (e.g. *tries to make you feel better when you're upset* or *talks about other people's feelings*). All three scales were combined into one prosocial behavior score. Reliabilities were computed for Wave 1 (α = .80) and Wave 3 (α = .84).

Prosocial Parenting Practices. Mothers completed a short questionnaire about their parenting practices (adapted from Gross et al., 2015). Of interest for the current study were the questions about parental prosocial socialization practices. Parents answered 21 items about how often they use strategies to encourage their children to help others and share with others. Answers ranged from 0 to 6 (1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Regularly, 5 = Frequently and 6 = A lot). Items included encouragement, rewarding, praising, planning activities and gestures/ facial expressions (e.g. *use facial expressions when I ask my child to help; thank my child when s/he helps me or someone else; use the word "help", "helping", or "helper" with my child; plan activities that require sharing; reward my child by giving him/her something for helping*). Reliability was computed for Wave 1 (α = .89).

Temperament. Mothers completed subscales of a short, translated version of the Early Children's Behavior Questionnaire (ECBQ; Putnam & Rothbart, 2006; van den Bergh & Ackx, 2003). Parents rated their child's temperament by indicating how often the child showed specific behaviors during the last two weeks and rated from one to seven

Table 1.
Cues given by E for the instrumental helping task and emphatic helping task.

Type of cue	**Instrumental helping**	**Empathic helping**
1. Facial and body expression	[Pick up the cube, put it back and look confused with your palms up]	[Hug yourself and shiver] "Brr!"
2. Naming action	"I can't wrap anymore!"	"I'm cold!"
3. Naming necessity	"I need something to wrap with"	"I need something to make me warm"
4. Naming object	"Tissues!"	"My blanket!"
5. Exchange looks between the object and child	[Look to the tissue and then to the child and back]	[Look to the blanket and then to the child and back]
6. Gesture	[sufficient hand gesture, open palm directed to the tissue]	[Sufficient hand gesture, open palm directed to the blanket]
7. General instruction	"Can you help me?"	"Can you help me?"
8. Specific instruction	"Can you give me more tissues?"	"Can you give me my blanket?"

Note: five seconds were taken before giving the next cue and stopped when the child helped.

(1 = Never; 2 = Very Rarely; 3 = Less than half the time; 4 = About half the time; 5 = More than half the time; 6 = Almost always; 7 = Always; NA = Does not apply). Sample items of the scales included Anger/ Frustration (e.g. *get irritable; become frustrated; have a temper tantrum),* Impulsivity (e.g. *when asked not to, touch an attractive item anyway; when asked for a desirable item, go after it anyway*) and Inhibitory Control (e.g. *when offered a choice of activities, stop and think before deciding; sit on the sidelines and observe before joining in*). Reliabilities were computed for the subscales Anger/Frustration ($\alpha = .89$), Inhibitory Control ($\alpha = .65$) and Impulsivity ($\alpha = .43$). To investigate the underlying structure of 'negative temperamental traits', one factor (with an Eigenvalue exceeding 1) was identified: (the lack of) inhibitory control and anger/frustration. The factor accounted for 65% of the variance in the questionnaire, and was labeled as 'difficult temperament'.

Strategy of analysis

All data was interpreted with SPSS (version 23). The sharing score was computed by the percentage of treats shared *after* the experimenter asked. For the analysis that included the observations from the experiment, a total prosocial behavior score was computed by using Z-scores across the three prosocial behavior tasks. Mean scores were used for mother-reported prosocial socialization and temperament, and mother- and teacher reported prosocial behavior.

To examine whether prosocial practices and negative temperamental traits measured at Time 1 accounted for a significant proportion of the variance in prosocial behavior at Time 3, beyond that already accounted for by prosocial behavior at Time 1, three hierarchical multiple regression analysis (MRA) were employed. In order to examine the concurrent relation between prosocial socialization, negative temperament and prosocial behavior (all Time 1), the MRA's were conducted with prosocial behavior Time 1 (parent, teacher-reported and observed) as the dependent variable. To examine the longitudinal prediction, prosocial behavior (Time 1) was entered on every first block of the MRA's as a control variable (respectively for parent reported, teacher reported and observed prosocial behavior at model 1, 2 and 3). On the second block, the predictors, prosocial socialization and negative temperament (Time 1), were entered. On the third block of the models the interaction term, prosocial socialization x negative temperament, was entered. Variables were centered for the interaction term to counteract multicollinearity.

Results

Descriptive statistics

Table 2 shows the means and standard deviations on the observed prosocial tasks, mother reported and teacher reported variables at Time 1 and Time 3. Table 3 shows the Pearson correlations for all variables used in the current study.

Table 2.

Distribution of questionnaires and experiments mean scores on Time 1 and Time 3.

		Time 1		Time 3	
		N	*M (SD)*	*N*	*M (SD)*
Experiment					
Instrumental helping		89	3.93 (2.9)	78	5.68 (2.4)
Comforting		92	1.42 (1.8)	87	3.57 (2.4)
Percentage shared		91	25.73 (33.5)	86	14.35 (23.4)
ITSEA	*Mother*	98	2.31 (.28)	58	2.50 (.22)
	Teacher	100	2.27 (.36)	57	2.43 (.32)
Prosocial Practices	*Mother*	87	3.90 (.65)		
ECBQ	*Mother*	89			
Impulsivity			4.54 (.85)		
Lack of Inhibitory Control			4.46 (1.1)		
Anger/Frustration			3.18 (.98)		

Assumptions

Before interpreting the results of the hierarchical MRA, a number of assumptions were tested, and checks were performed. First, stem-and-leaf plots and boxplots indicated that each variable in the regression was normally distributed and free from univariate outliers. Second, an inspection of the normal probability plot of standardized residuals and the scatterplot of standardized residuals against standardized predicted values indicated that the assumptions of normality, linearity and homoscedasticity of residuals were met. Finally, relatively high tolerances for all three predictors in the final regression model indicated that multicollinearity would not interfere with the ability to interpret the outcome of the MRA.

Table 3.

Pearson Correlations for all variables used in the study.

	1	2	3	4	5	6	7	8
1 T1 Mother-reported prosocial behavior	-							
2 T3 Mother-reported prosocial behavior	.254	-						
3 T1 Teacher reported prosocial behavior	-.051	.173	-					
4 T3 Teacher reported prosocial behavior	.007	.142	.077	-				
5 T1 Observed prosocial behavior	-.065	-.037	-.044	-.080	-			
6 T3 Observed prosocial behavior	-.012	.125	.039	-.118	.233	-		
7 T1 Prosocial socialization	.264*	.371**	-.007	-.178	.147	.245*	-	
8 T1 Negative temperament	-.417**	-.378**	-.067	.053	-.070	-.036	-.278**	-

Note. * $p < .05$; ** $p < .01$.

Early prosocial behavior, prosocial practices and negative temperamental traits in relation to concurrent and longitudinal prosocial behavior.

To answer whether prosocial practices and negative temperamental traits predict prosocial behavior in toddlerhood, analysis for concurrent and longitudinal regression analyses were conducted. The concurrent analysis was executed for Time 1 prosocial behavior and results are presented in Table 4. For mother-reported prosocial behavior, negative temperament was the only significant predictor (B = -.35, p = .002). For teacher-reported and observed prosocial behavior, none of the variables were significant predictors nor was the interaction between child temperament and parenal prosocial practices significant.

For the longitudinal analysis (see Table 5), mother-reported prosocial behavior accounted for a significant 10% of the variance in prosocial behavior one year later, R^2 = .10, F (1, 48), = 5.08, p = .029. When prosocial practices and temperament were added to the regression equation, it accounted for a significant, additional 15% of the variance in later mother-reported prosocial behavior, ΔR^2 = .148, ΔF (1, 46) = 4.51, p = .016, with negative temperament being the significant predictor (B = -.33, p = .033). By Cohen's (1988) conventions, a combined effect of this magnitude can be considered medium (f^2 =.30).

Early prosocial behavior reported by teachers, did not account for a significant variance in teacher-reported prosocial behavior one year later. No significant predictors were found, nor was the interaction between child temperament and parental prosocial practices significant.

Early observed prosocial behavior accounted for a significant 6% of the variance in observed prosocial behavior one year later, R^2 = .063, F (1, 59) = 3.99, p = .050. Parental prosocial practices was the only significant predictor and (positively) related to observed prosocial behavior one year later (B = .86 p = .034). The interaction term, however, was not significant.

Table 4.

*Unstandardised (B) and Standardised (β) Regression Coefficients, and Standard Errors (*SE*) For Each Predictor Variable on Each Step of Hierarchical Multiple Regression Analysis, Predicting Concurrent Prosocial Behavior.*

		Prosocial Behavior Time 1											
		Mother-reported				Teacher-reported				Observed			
		R^2	*B*	SE	β	R^2	*B*	SE	β	R^2	*B*	SE	B
Block 1		.18***				.01				.02			
	Prosocial Socialization		.10	.06	.17		-.03	.08	-.04		.39	.36	.13
	Negative Temperament		-.13	.04	-.35**		-.06	-.05	-.12		-.09	.23	-.05
Block 2		.21***				.01				.02			
	Negative Temperament x Prosocial Socialization		.10	.06	.18		-.00	.08	-.00		.03	.35	.01

**p < .05; **p < .01; ***p <.001.*

Table 5.

*Unstandardised (B) and Standardised (β) Regression Coefficients, and Standard Errors (*SE*) For Each Predictor Variable on Each Step of Hierarchical Multiple Regression Analysis, Predicting Longitudinal Prosocial Behavior, controlling for Prosocial Behavior Wave 1.*

		Prosocial Behavior Time 3											
		Mother-reported				Teacher-reported				Observed			
		R^2	*B*	SE	β	R^2	*B*	SE	β	R^2	*B*	SE	B
Block 1		.10*				.05				.06*			
	Prosocial Behavior Time 1		.19	.09	.31*		.13	.09	.22		.27	.14	.25*
Block 2		.24**				.08				.14			
	Prosocial Socialization		.08	.05	.22		-.06	.07	-.14		.86	.40	.28*
	Negative Temperament		-.07	.03	-.33*		.03	.05	.11		.20	.25	.11
Block 3		.24*				.09				.14*			
	Negative Temperament x Prosocial Socialization		.00	.04	.00		.03	.10	.05		-.17	.37	-.06

**p < .05; **p < .01.*

Discussion

The aim of the current study was to examine individual differences in early prosocial behavior in toddlers, by taking socialization practices of parents and child temperament into account. First, the study focused on the contribution of prosocial socialization practices that parents use. Several investigators found that parents who talked about emotions with their children or appropriately scaffolded their children, helped and shared more quickly (Brownell et al., 2013; Hammond, 2011). It was therefore hypothesized that children of parents who used more prosocial practices and encouraged, rewarded and praised their child's prosocial activities, would show more prosocial behavior over time. Results of the current study showed that parents who used more prosocial practices, had children who showed more prosocial behavior by helping and sharing on observed prosocial task approximately one year later – thereby confirming previous studies. However, this was only the case when prosocial behavior was observed in the experiment. When prosocial behavior was reported by parents or teachers, no associations between socialization practices and prosocial behavior were found. Where the study of Brownell and colleagues (2013) found that while reading pictures books, it was the quality of parents labeling and explaining the characters emotions that was associated with sharing and helping, the current study finds that the also quantity of parental prosocial practices in general is associated with helping and sharing. The current study is also consistent with the finding of Hammond (2011), in that parental socialization practices were predictive of children's helping behavior.

Second, this study focused on negative temperamental traits in relation to prosocial behavior. Several authors have stressed the role of difficult temperament and negative affectivity in explaining toddler's helping and comforting (Thompson & Newton, 2013; Schuhmacher et al., 2017). Whereas previous research focused on fearfulness, sadness or irritability as negative temperamental traits and found mixed results, the current study explored anger/frustration and the lack of inhibitory control as negative temperamental traits in relation to prosocial behavior. It was hypothesized that children higher on these temperamental traits, would show less prosocial behavior than toddlers lower on these traits. Results showed indeed that children high on negative temperamental traits showed less prosocial behavior when reported by parents, roughly consistent with the finding that irritable traits such as anger and discomfort, are related to anti-social traits (Rothbarth et al., 1994). However, the current study found that negative temperamental traits did not predict less prosocial behavior according to teachers and in observed tasks. In contrast to previous work

(Gross et al., 2011; Spinrad & Stifter, 2006; Liew et al., 2011), the current study found an association between negative temperamental traits and mother-reported prosocial behavior. Whereas these previous that studies have taken fearfulness, shyness, and social fear into account in explaining individual differences in prosocial behavior, the current study found that (the lack of) inhibitory control and anger/ frustration in young children negatively predicts prosocial behavior. More research is needed to replicate these findings and to conclude which negative temperamental traits are most important in predicting individual differences in emerging prosocial behavior.

Third, this study investigated whether temperament acted as a moderator on the link between prosocial practices and prosocial behavior. This hypothesis was based on a previous meta-analysis, supporting the differential susceptibility model and stated that children with a more difficult temperament and children high on negative emotionality were more vulnerable to negative/ harsh parenting, but also gained more from positive parenting than children with an easier temperament (Slagt et al. 2016). It was therefore hypothesized that toddlers high on negative temperamental traits, would be more susceptible for prosocial practices and therefore would show less prosocial behavior when prosocial practices were low, but show more prosocial behavior when prosocial practices were high, compared to children lower on these negative traits. However, the current study did not find an interaction effect. That is, negative temperament did not moderate the relation of prosocial practices on prosocial behavior – and therefore no support for the differential susceptibility hypothesis was found. The results are difficult to interpret in comparison to the diathesis-stress model (Zuckerman, 1999), which states that some individuals possess characteristics that make them, more than others, vulnerable to harsh circumstances they encounter, such as poor parenting. The current study did not measure any harsh circumstances, or stressors. Furthermore, the current study measured prosocial practices and not parenting terms of warmth/control or harsh parenting. Furthermore, when prosocial practices are low, it does not parallel poor quality parenting since their upbringing might still be warm, loving and consistent. In terms of the vantage sensitivity model (Pluess & Belsky, 2013) which states that some individuals benefit disproportionally from enriched environments, whereas others gain little to nothing from enriched environment, the current study did not find that toddlers either high or low on negative temperamental traits gained disproportionally from parental socialization.

Different results for mother, teacher and observational reports could reflect differences in how parents and teacher completed the questionnaires. However, since there has not been a study predicting prosocial behavior with both parent- teacher- and observational reports, the

following are speculations as to possible reasons. Mothers might have perceived their child's desirable behavior as dispositional and undesirable ones as unstable and situationally caused, so they might have under-reported on the child's negative traits and over-reported on their child's prosocial behavior, as attribution theory predicts (Gretarsson & Gelfand, 1988). On the other hand, however, parents observe their children over time and in multiple contexts, providing a more valid assessment of their children's prosocial behavior. In the same perspective, teachers might have under-reported toddler's prosocial behavior by comparing to the older children in the group or they could be less accurate in reporting children's behavior because they have spent less time with them compared to mothers. More likely however, differences in questionnaire and the observational experiment could reflect different concepts of prosocial behavior. While the experiment focused on specific helping and sharing behaviors, the questionnaire encompasses a more broad definition of prosocial behavior, such as asking for things nicely, taking turns while playing with others or awareness of other people's feelings. It might have been the case that the different ways that prosocial practices are reported, corresponded more specifically with the specific prosocial behavior tasks in the experiment, whereas it might have had little to do with the prosocial behaviors measured by the questionnaire (ITSEA).

Strengths and Limitations

A clear strength of the current study lies in the inclusion of both mother, teacher- and observational reports and shows that results can differ, depending on who reported on the children's prosocial behavior. It is recommended for future studies to take into account different judgments as well, to confirm the results found in the current study.

One of the limitations includes the generalizability of the results found in the current toddler sample. Since almost all of the toddlers were born in the Netherlands and were mostly from middle-class background, this study might not represent the true (cultural) variability in the Netherlands and might not be generalizable to other samples. Future work could take into account differences in social economic status or cultural background.

Another limitation concerns the conceptualization of 'negative temperament' in this study. Since the current study explored only anger/frustration and (the lack of) inhibitory control as negative temperamental traits, stronger or different results might be found when including measures of sadness, fear, worry, irritability and discomfort as well. Future studies are recommended to use a temperament scale which includes more temperamental traits. Furthermore, parental prosocial practices reported by parents itself, might be prone to social

desirability – so an observational, objective measure of children's prosocial behavior in their home or at the daycare would provide an enriched measurement of prosocial behavior. In addition, a social desirability scale might be a good addition to try to control for bias. When observing specific prosocial practices in parents, future research could explore whether different practices might have an effect on different forms of prosocial behavior. Exploring this is especially important, since parents can then learn what practices are most likely to work for their toddler. Parents and other caregivers can then assist and aid young children towards behaving more prosocially, which is valuable for children to learn.

On a last note, it is worth to remark that besides temperament and parental socialization, other factors undoubtedly contribute to individual differences in prosocial behavior. These could include their social understanding, parental characteristics in their upbringing, such as warmth, or attachment security. These factors and the aspects focused on in this study are likely to interact with each other to influence individual differences in early prosociality.

Conclusion

The current study found that prosocial practices used by parents predicted increases in observed prosocial behavior one year later, while negative temperamental traits in toddlers, predicted decreases in prosocial behavior as reported by mothers. These results suggest that parents can be important contributors their children's developing prosociality and when using prosocial practices, they can assist them in developing helping and sharing skills. The results also suggests that children with a difficult temperament may need extra support when it comes to helping and sharing with others.

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