

Toddler empathy as a mediator of the association between parental responsiveness and prosocial behavior in toddlers

Mastersthesis Clinical Child and Adolescent Psychology

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Utrecht, June 22, 2019

Abstract

While much is known about prosocial behavior in toddlers, not much is known about the underlying mechanisms that influence this development. The present study investigated the role of parental responsiveness and toddler empathy in predicting toddlers' prosocial behavior and whether toddler empathy explains the association between parental responsiveness and prosocial behavior.

Longitudinal data was used from two waves which were one year apart. In total, 98 toddlers (16-28 months) and their family and daycare teachers participated. They were followed across 2 waves which were one year apart. To measure parental responsiveness, parent reports were used. Toddler empathy was measured by parent and teacher reports. Toddlers' prosocial behavior (sharing, empathic helping and instrumental helping) was measured with three standardized behavioral prosocial tasks. The present study found that parental responsiveness and toddler empathy did not predict toddlers' prosocial behavior. Furthermore, toddler empathy did not explain the association between parental responsiveness and prosocial behavior, which was not expected. This could be due to some limitations of the present study. However, the present study did show an age-related increase in prosocial behaviors and added to the research on the underlying mechanisms that influence the development of prosocial behavior.

Keywords: parental responsiveness, empathy, toddlers, prosocial behavior

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The development of prosocial behavior in toddlers is a major topic in developmental psychology. Prosocial behaviors are behaviors that, without providing the helper an immediate payoff, benefit another person (Paulus, 2014). Prosocial behavior consists of different actions that individuals can engage in. Three important actions are sharing (e.g., sharing toys with another child), empathic helping or comforting (e.g., giving something, which helps someone feel better) and instrumental helping (e.g., handing over a missing piece to help someone complete a task). As early as 18-months, infants can recognize and produce prosocial behaviors when an experimenter showed negativity, such as need, distress or desire (Dunfield, Kuhlmeier, O'Connell, & Kelley, 2011). Prosocial behavior develops strongly over toddlerhood (Svetlova, Nichols, & Brownell, 2010). While more and more is known about the development of prosocial behavior in toddlers, less is known about the possible mechanisms underlying this development (Brownell & Early Social Development Research Lab, 2016; Dunfield et al., 2011; Spinrad & Gal, 2018). Two important variables that are related to prosocial behavior are parental responsiveness and toddler empathy (Grusec, 2011). The purpose of the present study is to examine the association between these two variables and prosocial behavior in toddlers. This will help getting a better understanding of the way prosocial behavior develops and what can be done to promote prosocial behavior in young children.

The first factor that has been found to be related to prosocial behavior is parental socialization, in particular parental responsiveness (Grusec, 2011). Socialization of toddlers plays a large role in the development of prosocial behavior. The social-normative model (Paulus, 2014) stresses the role of the social environment in the emergence of prosocial behavior in toddlers and the fostering and supporting of this process. This model states that the social input from the environment elicits and scaffolds the emergence of the different prosocial behaviors (Paulus, 2014). One of the ways socialization of toddlers leads to prosocial behavior is parental responsiveness to toddlers' needs and distress (Hastings, Utendale, & Sullivan, 2007). Responsiveness to distress is "the nature of the

parental reaction when a child is upset or distressed” (Davidov & Grusec, 2006, pp. 44). This involves sensitive reactions to the child, such as comforting (Roberts & Strayer, 1987). Some studies found that responsive mothers model compassion and empathy and this predicts the prosocial responding in children (Blandon & Scrimgeour, 2015; Davidov & Grusec, 2006; Laible, Carlo, Davis, & Karahuta, 2016). However, another study did not find an association between parental responsiveness and prosocial behavior in toddlers (Spinrad & Stifter, 2006). One possible explanation for this discrepancy could be the age of the children being studied. While the former studies focused on children from 3 to 8 years, Spinrad and Stifter (2006) studied children who were 1.5 years old. It could be that at such a young age, children are too young to socialize and show variation in their prosocial behavior in response to parental responsiveness.

This could be due to the way parents socialize their children going from more action-oriented messages (e.g. “Get the book”) to more need-oriented messages (e.g. “I could really use your help”); Waugh, Brownell, & Pollock, 2015). Furthermore, toddlers want to participate more in adult activities and want to see a person being helped more the older they get. Parents use this to guide their children to different ways of helping with the interaction between parent and child over time makes the child help more (Dahl, 2018). In support of this notion, a study of Van der Mark, Van IJzendoorn, and Bakermans-Kranenburg (2002) showed this age effect, where a link between parental sensitivity and prosocial behavior (as part of an empathy measure) was found when children were 22 months old, but not when 16 months. This suggests that around 18 months and older, children show increasingly more prosocial behavior, and because of this, more associations with other variables. The present study adds to the few studies about the influence of parental responsiveness on toddlers’ prosocial behavior. This was done by examining prosocial behavior in toddlers between 18 and 22 months across two measurement waves spaced 12 months apart, with the prediction that toddlers will show increasingly more prosocial behavior as they mature, and that parental responsiveness would predict changes in prosocial behavior across time.

Furthermore, empathy is a child factor that was found to be related to prosocial behavior in toddlers. Empathy is “an affective response that stems from the apprehension or comprehension of another’s emotional state or condition, and which is identical or quite similar to what the other person is feeling or would be expected to feel” (Eisenberg, Fabes, & Spinrad, 2006, pp. 2). Theoretically, people who empathize are likely to have a better understanding of the feelings of others, and consequently, are more motivated to reduce the distress of others (Eisenberg & Fabes, 1990). Consistent with this theoretical expectation, research suggests that children’s empathy is positively associated with prosocial behavior in children (Eisenberg, Eggum, & Di Giunta, 2010; Krevans & Gibbs, 1996). Yet some studies found this association to be weak or inconsistent (Roberts & Strayer, 1996; Strayer & Roberts, 2004). There are some studies that investigated the association between empathy and prosocial behavior in toddlers. In a study with toddlers, results indicate that toddler empathy increases and stabilizes from 24 to 54 months of age and positively predicts prosocial behavior towards peers at 6/7 years (Taylor, Eisenberg, Spinrad, Eggum, & Sulik, 2013). Furthermore, Knafo, Zahn-Waxler, Van Hulle, Robinson, and Rhee (2008) found that empathy at 14, 20, 24 and 36 months positively predicted prosocial behavior towards the mother at these ages, while only empathy at 36 months positively predicted prosocial behavior towards the experimenter at this age. Longitudinal studies investigating the association between empathy and prosocial behavior in toddlers is scarce, which is why the present study aims to contribute to the ongoing research in the association between toddler empathy and prosocial behavior in toddlers.

Toddler empathy also was found to be influenced by the responsiveness of the mother. As Barnett (1987) proposed, empathy is most likely to develop in a family environment that (1) discourages the child's excessive self-concern and satisfies emotional needs, (2) encourages the child to express and experience a broad range of emotions, and (3) provides situations in which the child can observe and interact with other individuals who encourage responsiveness and emotional sensitivity. Responsivity seems to fit well into these criteria. As theory suggests, responsivity promotes children's empathy as well as prosocial behavior because this gives the child a feeling of

control, security and trust in the environment, which in turn minimizes self-concern and leaves room for the child to consider and respond to the feelings of others (Hoffman, 1982a; Janssens & Gerris, 1992; Radke-Yarrow, Zahn-Waxler, & Chapman, 1983; Zhou et. al., 2002). Some research supports this theoretical assumption and found positive associations between responsiveness and children's empathy (Davidov and Grusec, 2006; Kochanska, Forman, & Coy, 1999; Spinrad & Stifter, 2006). Yet, another study did not find this association (Barnett, Howard, King, & Dino, 1980). This could be due to the measure of empathy, which varied from observing empathy-related behavior (Spinrad & Stifter, 2006; Kochanska et al., 1999), parent-reported empathy (Davidov & Grusec, 2006), self-reported empathy (Barnett et al., 1980) and teacher-reported empathy (Davidov & Grusec, 2006). Also, the design of the studies seems to play a role. Longitudinal studies were more likely to have found a positive association compared to cross-sectional studies. Because of the inconsistency in the found results, the present study adds to this research by studying the influence of toddler empathy on toddlers' prosocial behavior by using a longitudinal design with both parent- and teacher-reported empathy.

While research found some links between parental responsiveness, toddler empathy and prosocial behavior in toddlers, not much is known about whether toddler empathy is the process which makes children more prosocial. Hastings and colleagues (2007) suggest, that children's empathy might explain some of the link between parental socialization and older children's prosocial behavior. To our knowledge, only two studies investigated this possible association. Firstly, Krevans and Gibbs (1996) found in a study with children between 11 and 14 years, that children's empathy explains the positive association between parents' discipline and children's prosocial behavior. Furthermore, Guo and Feng (2017) found in a more recent study with 9-year-old Chinese children that parental emotional warmth was positively associated with children's altruism via children's empathy. This suggests that toddler empathy could explain the association.

In sum, as far as known this is the first two-wave longitudinal study that investigated whether toddler empathy explains the association between parental responsiveness and prosocial behavior in

toddlers. The central goal is to examine how parental responsiveness and toddler empathy are related to prosocial behavior between 16- and 28-month-old toddlers. The present study uses a longitudinal design that controls prosocial behavior at wave 3 for the prosocial behavior at wave 1. Parental responsiveness was hypothesized to be positively correlated with toddler empathy and prosocial behavior. Furthermore, it was hypothesized that toddler empathy would be positively correlated with toddlers' prosocial behavior. Moreover, it was hypothesized that parental responsiveness would significantly influence toddler empathy and in turn significantly influence toddlers' prosocial behavior. Figure 1 shows the conceptual model the present study investigated. Regression analyses were used to examine these models.

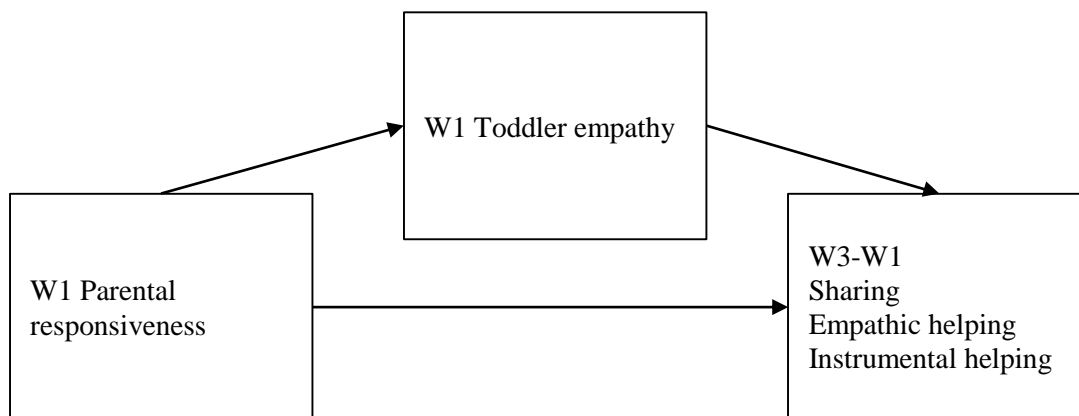


Figure 1. Conceptual model of the associations between the predictor parental responsiveness, the mediator toddler empathy and the dependent variable prosocial behavior.

Method

Sample

The present study used wave 1 and wave 3 data drawn from a three-wave longitudinal study with 113 toddlers between 16 to 28 months ($M = 22$ months, $SE = 3.6$), their teachers and their parents. The three waves were each six months apart. In each wave, the toddlers completed three prosocial tasks and the daycare teacher and parents filled in several questionnaires. Of the parents, 69.6% finished college education or higher, 13% technical education, 2.6% high school and 14.8% of the data was missing. With respect to ethnicity, 81.7% of the parents were Dutch, 0.9% were Surinamese, 2.6% were from a different ethnicity and 14.8% of the data was missing. An independent samples t-test

comparing the education level, ethnicity, parental responsiveness, toddler empathy and prosocial behavior of families who remained in the study ($N = 98$) to those who dropped out ($N = 15$) revealed no differences between the group that stayed in the study and the group that dropped out. The sample consisted of 54 boys (55%) and 44 girls (45%).

Procedure

Toddlers, parents and teachers were recruited through daycares in the Netherlands. Daycares were recruited through sending information letters. When daycares approved the study, parents were contacted through letters with information about the study which included consent forms. These consent forms were given out by the teachers of the toddlers. Only the toddlers whose parents filled in the consent form could participate in the study. The present study was approved by the ethics committee of the faculty of social and behavioral sciences at Utrecht University.

Measurements

Parental responsiveness. The responsiveness of the parents was measured with the subscale “responsiveness” that consists of six items from the Nijmeegse Opvoedingsvragenlijst (NOV; Gerris, et al., 1993) was used. This is a broad questionnaire that measures parenting attitudes. Each item could be answered on a 6-point Likert scale (1 = strongly disagree, 6 = strongly agree). An example of an item is: “I know very well what my child wants or feels”. A high score on the NOV indices more responsiveness. The mean score of the six items was used. This subscale was found to have a high internal consistency ($\alpha = .94$) (Engels, Deković, & Meeus, 2002). The present study showed a good reliability ($\alpha = .83$). Data showed that from the 98 families, only three fathers filled in the questionnaire. Mean scores of the responsiveness items were used.

Toddler empathy. Empathy of the toddlers was measured with the subscale “empathy” consisting of seven items from the Infant-Toddler Social and Emotional Assessment (ITSEA; Briggs-Gowan & Carter, 1998). The ITSEA consists of statements about children that can be answered on a 3-point Likert scale (0 = rarely, 2 = often) and there is a “never seen in that situation” option. An example of an item from this subscale is: “Aware of other people’s feelings”. A high score on the

ITSEA indices more empathy. The mean score of the seven items was used. Both parents and the daycare teacher of the toddler filled in this questionnaire. Research on the parent version shows that the items measuring empathy are reliable ($\alpha = .81$) and are validated as a unidimensional construct (Carter, Briggs-Gowan, Jones, & Little, 2003). In the present study, both parent version ($\alpha = .80$) and teacher version ($\alpha = .75$) were acceptably reliable, although they were not correlated with each other ($r = -.14, p = .19$). Therefore, each version was analyzed separately using mean scores.

Prosocial behavior. Lastly, prosocial behavior was measured with three standardized behavioral prosocial tasks. The three prosocial tasks assessing sharing, empathic helping and instrumental helping respectively. The sharing task was first, followed by counterbalanced empathic helping and instrumental helping. Two experimenters were present at the daycare one hour before starting the tasks to make the toddlers feel more comfortable around them and to introduce the toddlers to the treats being used in the tasks. In all the tasks, the toddler sat at a table or on the floor with the experimenter right in front of him/her. The second experimenter sat next to the toddler and stayed quiet, making sure the toddler stayed focused during the tasks. On average the three tasks took about 15 minutes to complete.

Sharing. The sharing task is based on a task used by Aknin, Hamlin, and Dunn (2012). The task began with an introduction phase in which the toddler was encouraged to share his/her treats with four stuffed animals (mouse, bunny, cat and panda) in front of him/her. The four stuffed animals all got their own bowl, just like the toddler. Subsequently, the experimenter gave each stuffed animal a treat by putting it in their bowl and making the stuffed animal “eat” the treat. The process of “eating” the treat was accompanied by the experimenter making the treat disappear under a sponge in their bowl. The experimenter then gave the toddler one treat in his/her bowl and asked the toddler whether he/she wanted to eat it. Afterwards, the experimenter gave the toddler a new bowl with 5 treats. The experimenter asked the toddler to give each stuffed animal one treat. The experimenter then followed different instructions to encourage the toddler to share the treats when the toddler was not responding or did not want to share. After the introduction phase, the experimental task started. In this task, the

toddler was encouraged to share treats with a stuffed animal, a monkey. The toddler and the monkey each had a bowl. This bowl was in reach of the toddler. Subsequently, the experimenter found 2, 4 or 8 treats, according to the experimental condition used, and put them in the bowl of the toddler. This was followed by three conditions which were counterbalanced in order across toddlers. The three conditions were as followed: (A) the experimenter found another treat and said “look! I have found another treat, I will give this treat to monkey”, (B) the experimenter found another treat and said “look! I have found another treat. Do you want to give this treat to monkey?”, and (C) “I cannot find anymore treats. Do you want to give monkey one of your treats?”. The task ended after this with the experimenter making the monkey wave goodbye to the toddler. Sharing was measured by the proportion of treats the toddler shared during the task.

Empathic helping. The empathic helping task is based on a task used by Svetlova and colleagues (2010). In this task, the toddler was encouraged to comfort the experimenter by giving the experimenter a blanket because the experimenter was cold. The experimenter started the task by showing the toddler a blanket and letting the toddler know the experimenter gets warm when she puts the blanket around her. Afterwards, the experimenter folded the blanket and laid it in reach of the toddler, far away from herself. The experimenter then started looking for a stuffed bear and gave it to the toddler to play with for 30-60 seconds. Subsequently, the experimenter used progressively more cues to show the toddler she was cold and wanted her blanket. These instructions were as followed: (1) the experimenter hugged herself and shook saying “brrr!”, (2) “I’m cold!”, (3) “I need something to warm me up”, (4) “my blanket!”, (5) the experimenter looked from the blanket to the toddler a couple of times, (6) the experimenter made an approaching hand gesture with an open hand towards the blanket, (7) “can you help me?”, and (8) “can you give me my blanket?”. Once the toddler gave the blanket, the experimenter stopped giving instructions, used the blanket as intended and said, “now I’m warm”. The experiment ended when the toddler gave the blanket or when all cues were given. Empathic helping was based on the reverse-coded number of cues needed for helping (0 = no help at all, 8 = facial/bodily/vocal expression of general need).

Instrumental helping. The instrumental helping task is based on a task used by Svetlova and colleagues (2010). In this task, the toddler was encouraged to help the experimenter by giving the experimenter a paper napkin to the experimenter could wrap up a block. The experimenter showed five blocks to the toddler and put them on the table. The experimenter also picked up five napkins and put one of the napkins close to the toddler yet far away from herself. Subsequently, the experimenter proceeded to wrap the blocks in the napkins. The experimenter then noticed she was missing one napkin for the last block and proceeded to give several instructions to the toddler encouraging him/her to give the last napkin. The instructions were as followed: (1) the experimenter picked up the block and placed it back and then looked around confused with her hand palms facing up, (2) “I cannot wrap anymore!”, (3) “I need something to wrap”, (4) “napkins!”, (5) the experimenter looked from the napkin to the toddler and back a couple of times, (6) the experimenter made an approaching hand gesture with an open hand towards the napkin, (7) “can you help me?”, and (8) “can you give me more napkins?”. The experiment ended when either the toddler gave the napkin and the experimenter could wrap the block, or the toddler did not give the napkin after all the instructions the experimenter gave. Instrumental helping was based on the reverse-coded number of cues needed for helping (0 = no help at all, 8 = facial/bodily/vocal expression of general need).

Data-analysis

All analyses were done in SPSS Statistics 24 (IBM Corp, 2016). For analyzing the data, the missing data were examined. To deal with the missing data, estimation maximization (EM) was used. The data seemed to be missing completely at random, as is shown by the Little’s Missing Completely at Random (MCAR) test $\chi^2(83) = 543, p = .67$, which made this method robust to handle missing data (Allison, 2001).

The present study used a longitudinal design. Regression analyses were used to test the associations between the predictors, wave 1 parental responsiveness and toddler empathy and the outcome variables, wave 3 sharing, empathic helping and instrumental helping, controlling for wave 1 sharing, empathic helping and instrumental helping. In preliminary analyses, age was included, but

this did not correlate with other variables. Because of this, age was not included in the following analyses. In the first step of the regression analyses, wave 1 prosocial behavior was added. In the second step, wave 1 prosocial behavior, parental responsiveness and toddler empathy by either parents or teacher were added. A Preacher-Hayes mediation analysis was used to test the mediational association between the variables. This Preacher-Hayes mediation tests three regression analyses for the mediational model with two predictors. The bootstrapping method enlarges the sample by taking thousands of samples from the database (Preacher & Hayes, 2008).

Preliminary analysis was done to check whether the assumptions needed before doing the mediational analyses were violated. The three assumptions that had to be met were linearity between the predictor and dependent variables, no statistical dependency between residuals and homoscedasticity (Allen, Bennett, & Heritage, 2014). The results showed no assumptions were violated.

Results

Correlations

The present study investigated the correlations between the variables being used (see Table 1). What this showed is that toddler empathy measured by parents at wave 1 was positively correlated to empathic helping at wave 3 ($r = .23$). In addition, empathic helping at wave 1 was positively correlated with empathic helping at wave 3 ($r = .22$). Instrumental helping at wave 1 was also positively correlated with instrumental helping at wave 3 ($r = .23$). Furthermore, wave 3 empathic helping was positively correlated with wave 3 instrumental helping ($r = .32$). Moreover, sharing and empathic helping at wave 1 were positively correlated ($r = .29$).

Table 1

Correlations between the variables used (N = 98).

Variables	1	2	3	4	5	6	7	8	9
1. Parental responsiveness	-								
2. Toddler empathy by parents	.16	-							
3. Toddler empathy by teacher	.04	-.14	-						
4. W1 Sharing	.03	.29**	-.01	-					
5. W1 Empathic helping	-.14	.15	.13	.08	-				
6. W1 Instrumental helping	-.14	.13	.03	.35**	.16	-			
7. W3 Sharing	.03	.03	.02	-.06	-.02	-.07	-		
8. W3 Empathic helping	.16	.23*	.02	.09	.22*	.09	.15	-	
9. W3 Instrumental helping	.05	.09	.08	.08	.02	.23*	.06	.32**	-

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

Regressions

Multiple regression analyses were used to test whether parental responsiveness and toddler empathy measured by parents and teacher predicted prosocial behaviors at wave 3 that was controlled for prosocial behavior at wave 1 (see Tables 2 and 3). The results indicated no significant predictors for sharing were found. The only significant predictor for empathic helping at wave 3 was empathic helping at wave 1 ($\beta = .20, p < .05$). The predictor explained 20% of the variance ($R^2 = .20, F(1,113) = 4.92, p < .05$). Furthermore, wave 1 instrumental helping was the only significant predictor of wave 3 instrumental helping ($\beta = .20, p < .05$). The predictor explained 4% of the variance ($R^2 = .04, F(1,113) = 4.62, p < .05$).

Table 2

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 sharing, empathic helping and instrumental helping (N = 98).

	W3 Sharing					W3 Empathic helping					W3 Instrumental helping				
	R^2	ΔR^2	B	SE	β	R^2	ΔR^2	B	SE	β	R^2	ΔR^2	B	SE	β
Block 1	.00	.00				.20*	.04				.04*	.04			
W1 Prosocial behavior			-.04	.08	.05			.25*	.11	.20			.16*	.07	.20
Block 2	.00	.00				.31	.06				.05	.01			
W1 Prosocial behavior			-.05	.08	.07			.24*	.12	.20			.16*	.08	.20
Parental responsiveness			.01	.07	.02			.66	.43	.14			.26	.44	.06
Toddler empathy by parents			.04	.09	.05			.95	.55	.16			.33	.56	.06

Note. R^2 = proportion explained variance in the model with parental responsiveness and toddlers' empathy as predictors, ΔR^2 = the change in R^2 between the different blocks, W1 = wave 1, W3 = wave 3.

* $p < .05$.

Table 3

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 sharing, empathic helping and instrumental helping (N = 98).

	W3 Sharing					W3 Empathic helping					W3 Instrumental helping				
	R^2	ΔR^2	B	SE	β	R^2	ΔR^2	B	SE	β	R^2	ΔR^2	B	SE	β
Block 1	.00	.00				.20*	.04				.04*	.04			
W1 Prosocial behavior			-.04	.08	-.05			.25*	.11	.20			.16*	.07	.20
Block 2						.31	.06				.05	.01			
W1 Prosocial behavior			-.05	.08	.07			.24*	.12	.20			.16*	.07	.20
Parental responsiveness			.01	.07	.02			.66	.43	.14			.26	.44	.06
Toddler empathy by teacher			.02	.07	.03			.05	.44	.01			.34	.44	.07

Note. R^2 = proportion explained variance in the model with parental responsiveness and toddlers' empathy as predictors, ΔR^2 = the change in R^2 between the different blocks, W1 = wave 1, W3 = wave 3.

* $p < .05$

Mediation models

For the sake of completeness, mediation analyses were conducted, even though no mediational associations were expected based on the regression analyses. See Table 4 for the results. As expected, no mediational associations were found.

Table 4

The mediational associations for the six models (N = 98).

Models	Variables	Total association			Direct association		Indirect association	
		R^2	β	SE	β	SE	b	CI
1	Y = sharing X = parental responsiveness M = toddler empathy by parents	.00	.02	.07	.01	.07	.01	[-.022, .042]
2	Y = empathic helping X = parental responsiveness M = toddler empathy by parents	.03	.73	.48	.57	.48	.15	[-.082, .502]
3	Y = instrumental helping X = parental responsiveness M = toddler empathy by parents	.00	.23	.53	.17	.53	.06	[-.108, .351]
4	Y = sharing X = parental responsiveness M = toddler empathy by teacher	.01	.06	.07	.06	.07	.00	[-.010, .030]
5	Y = empathic helping X = parental responsiveness M = toddler empathy by teacher	.04	.94	.50	.93	.50	.00	[-.106, .137]
6	Y = instrumental helping X = parental responsiveness M = toddler empathy by teacher	.01	.35	.55	.34	.56	.35	[-.106, .263]

Note. X = predictor, M = mediator, Y = dependent variable, SE = standard error, R^2 = proportion explained variance in the model with parental responsiveness and toddler empathy as predictors, β = effect size of the total and direct associations, b = effect size of the indirect association

Discussion

The present study tried to fill a gap in the literature about the development of prosocial behavior in toddlers. Two important variables in this development were examined, namely parental responsiveness and toddler empathy. Results of the present study failed to show that either parental responsiveness or toddler empathy predict prosocial behavior in toddlers between 16 and 28 months. In addition, toddler empathy did not explain the association between parental responsiveness and prosocial behavior. Only a simple correlation between parent reported toddler empathy and empathic helping was found.

The lack of no association between parental responsiveness and prosocial behavior could firstly be due to using a self-report questionnaire for measuring parental responsiveness. Self-reported data has shortcomings, like social desirability biases (Sallis & Saelens, 2000). Parents potentially rate themselves more responsive than they are. The present data supports this, showing that the majority of the responsiveness scores could be classified as high (72%). This makes the results less reliable and reduces variability, which could attenuate the correlations (Evers & Sermeus, 1998). Additionally, it is possible this association might not yet exist at such a young age, as research suggests (Blandon & Scrimgeour, 2015; Davidov and Grusec, 2006; Laible et al., 2016; Spinrad & Stifter, 2006). This might be because the older the child gets, the more they want to see a person being helped. Parents use this to guide the child in different ways of helping, which makes the child help more over time (Dahl, 2018). Based on the study by Van der Mark and colleagues (2002) it was hypothesized that associations between parental responsiveness and prosocial behavior would be found in toddlers from 22-months and older. Yet, based on the results of the present study and the above-mentioned research, it could be that the association between parental responsiveness and prosocial behavior shows at an older age. Moreover, it could be no association was found due to the measurement of prosocial

behavior. In the present study, the experimenter did not show emotions during the prosocial tasks. This is in contrast with research that did find an association between parental responsiveness and prosocial behavior with tasks or observations involving distress or pain to elicit prosocial behavior in toddlers (Bandon & Scrimgeour, 2015; Davidov & Grusec, 2006). It may be the present study measured a different kind of prosocial behavior that is not influenced by parental responsiveness. It is hypothesized that prosocial tasks involving emotions elicit prosocial behaviors in children that are influenced by parental responsiveness, while prosocial tasks without emotions do not. Further research should compare the two prosocial tasks to investigate whether there is a difference in influence of parental responsiveness.

Furthermore, no predictive associations were found between toddler empathy and prosocial behavior. Toddler empathy and sharing were possibly not associated due to the way sharing was measured. In the present study, the toddler was encouraged to share with a stuffed monkey. There are studies showing that toddlers share with adults (Brownell, Svetlova, & Nichols, 2009; Dunfield et al., 2011; Vaish, Carpenter, & Tomasello, 2009). Yet, studies about sharing with a stuffed animal are scarce (Aknin et al., 2012). It is recommended to further investigate the sharing behavior of toddlers with a stuffed animal to look at possible difference in sharing behavior.

Although toddler empathy did not predict empathic helping at wave 3, when accounted for wave 1 empathic helping, it did demonstrate a correlation between toddler empathy measured by parents and empathic helping at wave 3. This means that toddlers who show more empathy also show more empathic helping, which fits the theoretical framework mentioned by Eisenberg and Fabes (1990) and research on this association (Knafo et al., 2008; Taylor et al., 2013). Yet, the association went away when empathic helping at wave 1 was taken into account. This could be because empathic helping develops relatively late compared to the other prosocial behaviors, namely between the second and fourth year of life (Hoffman, 1982b, 2000; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). The present study measured empathic helping at wave 1, where most toddlers were around 2 years and at wave 3, when most toddlers were around 3 years. This suggests that at wave 1,

the empathic helping was less developed than at wave 3, making the observed prosocial behavior at wave 1 less reliable and regular and therefore could attenuate other associations (Demetriou & Hay, 2004; Hay, 2006). Together, this could explain why no associations were found between toddler empathy and empathic helping at wave 3 when wave 1 empathic helping was controlled for.

In addition, no association was found between toddler empathy and instrumental helping. Data from the present study showed that most toddlers at wave 1 (82%) and wave 3 (97%) helped instrumentally, which means variability is low. This will attenuate correlations (Goodwin & Leech, 2006). Research suggests that instrumental helping develops during the second year of life (Dunfield, 2014). In the present study at wave 1, most toddlers were 21 months old or older (62%), which makes it plausible the bigger part of the sample has already developed the ability to help instrumentally. It is possible that more variability would have been found in a younger group of toddlers. Furthermore, studies indicate that toddlers found it more difficult to help emphatically than instrumentally. The data of the present study shows this, less toddlers helped empathically at wave 1 (56%) and wave 3 (85%) than instrumentally. This could be because empathic helping is suggested to be motivated by emotion understanding and knowing emotion words, while instrumental helping is less so or not at all (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013; Newton, Goodman, & Thompson, 2014; Schuhmacher, Collard, Kärtner, 2017; Svetlova et al., 2010). Some form of empathy is needed to help empathically, while this is not needed to help instrumentally. Together, this suggests that toddlers from a young age seem to be able to help instrumentally, without needing to be empathic.

Moreover, the present study did not find an association between parental responsiveness and toddler empathy. This is contrary to what theory suggests (Hoffman, 1982a; Janssens & Gerris, 1992; Radke-Yarrow et al., 1983; Zhou et. al., 2002). This could be due to the way toddler empathy was measured, namely with a questionnaire. To get a more reliable image and because the amount of empathy might differ at home and at the daycare, both a parent and teacher form were used. Parents and teachers could have reported higher empathy to make the toddler look more socially desirable, which data from the present study implies. Both parents and teachers reported more high empathy

scores (parents 98%, teachers 94%) than low scores (parents 2%, teachers 6%), which suggests a social desirability bias was present. Having mostly high scores means less variability. This makes the chances of finding correlations lower (Goodwin & Leech, 2006). Also, both parental responsiveness and toddler empathy were measured at wave 1. It could be that a clearer image of the influence of parental responsiveness and toddler empathy would have been found when these variables were also measured at wave 3, because research suggests both variables strongly develop during the second year of life (Davidov and Grusec, 2006; Knafo et al., 2008; Spinrad & Stifter, 2006; Taylor et al., 2013).

Finally, the present study examined whether the association between parental responsiveness and prosocial behavior in toddlers (sharing, empathic helping and instrumental helping) could be explained by toddler empathy as reported by the parents and the daycare teacher. Against expectations, the results failed to show that toddler empathy did explain the association between parental responsiveness and prosocial behavior. This does not fit the research suggesting that children's empathy explains the association between parental socialization and prosocial behavior (Guo & Feng, 2017; Hastings et al., 2007; Krevans & Gibbs, 1996). This could firstly be because of the young age of the toddlers used in the present study. The present study is the first study to investigate the role of parental responsiveness and toddler empathy on the development of prosocial behavior. Where research on older children did find associations (Guo & Feng, 2017; Krevans & Gibbs, 1996), the present study did not. It may be that parental responsiveness starts influencing toddler empathy and prosocial behavior at an older age. Research suggest this, showing that parental responsiveness is associated with toddler empathy and prosocial behavior in children, but not in toddlers (Bandon & Scrimgeour, 2015; Davidov and Grusec, 2006; Kochanska et al., 1999; Laible et al., 2016; Spinrad & Stifter, 2006). Toddler empathy also appears to become more stable with age, suggesting more associations could be found with empathy in older toddlers (Knafo et al., 2008; Taylor et al., 2013). Furthermore, both the parental responsiveness and toddler empathy measures seem to be subjected to a social desirability bias, lowering the variability and in turn lowering the chances of finding correlations (Goodwin & Leech, 2006). Future research should investigate others

ways to measure parental responsiveness and toddler empathy, for example by observing the behavior as some research has done already (Kochanska et al., 1999; Spinrad & Stifter, 2006).

When examining the results further, data reveals that sharing, empathic helping and instrumental helping increased from wave 1 to wave 3. This is in line with literature about the development of prosocial behavior (Dunfield, 2014; Svetlova et al., 2010; Zahn-Waxler et al., 1992). These findings suggest the prosocial behavior tasks are robust measures to investigate sharing, empathic helping and instrumental helping in toddlers. A strength of the present study therefore was the use of these tasks to measure prosocial behavior across two waves. Because toddlers cannot talk about and/or fill in a questionnaire about their own behavior yet, prosocial tasks were chosen. Observing the behavior of the child is more reliable than using a questionnaire, because this could induce social desirability, where the prosocial behavior is rated higher than it actually is (Sallis & Saelens, 2000). Yet, the prosocial tasks were done with an experimenter who the toddlers did not know. It is possible that more prosocial behavior would have been observed when the prosocial tasks were performed between a parent and their toddler, and because of this, more associations could have been found, as research suggests (Knafo et al., 2008).

A limitation is that the present study used a sample size of mostly Dutch toddlers (82%), which makes the sample less generalizable. Also, research suggests that there are cross-cultural differences in parental socialization. While individualistic cultures like the Netherlands focus more on autonomy, collectivistic cultures, like India, focus more on empathic concern and prosocial behavior (Aronson, Wilson, & Akert, 2005; Mesurado et al., 2014). This means there could be a stronger link found between parental socialization and prosocial behavior in more collectivistic cultures than in more individualistic cultures (Mesurado et al., 2014; Trommsdorff, 2013). It is recommended to study the emergence of prosocial behavior and the role of parental socialization in both cultures.

A further limitation is the way the prosocial tasks were set up. While the tasks seem to be robust, it could be these tasks did not measure true natural prosocial behavior. In these tasks the toddlers were asked to share or help. In the present study, at wave 1 many toddlers needed explicit

cues from the experimenter before they helped empathically (45%) or instrumentally (35%). At wave 3, still most toddlers needed these explicit cues before helping empathically (42%) or instrumentally (29%). For sharing, most toddlers shared treats after the encouragement at wave 1 (64%) and wave 3 (82%). So, the rates of sharing and helping included the sharing and helping behaviors of toddlers that received specific cues to encourage these behaviors. The present study potentially did not measure true prosocial behavior in toddler, but the amount of encouragement from the experimenter needed before they shared or helped. Research suggests that early prosocial behaviors depend on communicative and social support from others (Svetlova et al., 2010). A study by Bakeman and Adamson (1984) supports this notion, finding that mothers of young children first scaffold social engagement before the children can do this on their own. With age, children need less scaffolding. To measure true prosocial behavior, future studies should limit the amount of encouragement and cues.

Despite the limitations, the present study showed age-related increases in prosocial behaviors, building on existing theory and research suggesting that prosocial behavior develops greatly during toddlerhood (Svetlova et al., 2010). While toddler empathy was found to not explain the association between parental responsiveness and prosocial behavior, the present study did find associations that fit the existing research on toddler empathy and prosocial behavior. More longitudinal research into the influence of parental responsiveness and toddler empathy on the development of prosocial behavior is needed to further fill the gap in the literature. It is suggested to investigate the development of parental responsiveness and toddler empathy over time, because these variables seem to become more important with age. Future research would preferably use more diverse sample sizes and consider other areas of parental socialization, for example parental induction or parental warmth. To conclude, more research about the underlying mechanisms of the development of prosocial behavior is needed. With more information about these underlying mechanisms, prevention programs can be developed to help promote these mechanisms and in turn prosocial behavior.

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