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Paternal and Maternal Warmth and the Development of Prosociality among Preschoolers

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To Cite:

Daniel, E., Madigan, S., & Jenkins, J. (2015). Paternal and Maternal Warmth Motivates Preschoolers Development of Prosociality. *Journal of Family Psychology*. Early view. doi: 10.1037/fam0000120

Acknowledgements

We are grateful to the families who give so generously of their time, to the Hamilton and Toronto Public Health Units for facilitating recruitment of the sample, and to Mira Boskovic for project management. The grant ‘Transactional Processes in Emotional and Behavioral Regulation: Individuals in Context’ was awarded to Jennifer M. Jenkins and Michael Boyle from the Canadian Institutes of Health Research and covered data collection. We are also grateful to the Connaught Global Challenge Fund for providing financial support to the contributors of this study. The study team, beyond the current authors includes: Janet Astington, Cathy Barr, Kathy Georgiades, Greg Moran, Chris Moore, Tom O’Connor, Michal Perlman, Hildy Ross, Louis Schmidt.

Abstract

Although the influence of maternal behavior on child outcomes has been extensively studied, there has not been the same attention to the role of paternal behavior in development. This gap in research stands in contrast to the observable shift in parental roles and responsibilities in contemporary society. The goal of this study was to examine the roles of fathers, mothers, and children in the development of children's prosocial behavior. The current study examines the development of reciprocal relations between paternal and maternal behavior and child prosociality over 36 months. Three-hundred and eighty-one families were assessed when children were aged 18, 36, and 54 months. Fathers and mothers reported on their own warmth and negativity using standardized questionnaires. Child prosociality was measured using averaged parental reports. Actor-partner interdependence models revealed that paternal and maternal warmth predicted subsequent increases in child prosocial behavior, but child prosocial behavior did not predict subsequent parenting. Father and mother parenting practices were reciprocally interrelated. The results point to the important role of paternal warmth, as well as maternal warmth, in the development of children's prosocial behavior.

Keywords: Fathering, mothering, prosocial behavior, Actor-partner interdependence model, longitudinal models

Paternal and Maternal Warmth and the Development of Prosociality among Preschoolers

A small but growing body of literature on the role of parenting in early childhood for the development of prosocial behavior suggests that maternal warmth is associated with increased prosociality (Hastings, McShane, Parker, & Ladha, 2007). In contrast, the literature on the association between parental negativity and prosociality has been mixed; while some studies report that parental negativity and harsh discipline are not associated with prosocial development, others report an association with lower levels of parental negativity predicting higher prosocial behavior (Knafo & Plomin, 2006). Importantly, existing research has focused primarily on the unidirectional role of mothers in promoting the development of prosocial behavior, neglecting the potential influence of fathers, as well as the importance of examining both parent-driven and child-driven effects (Barnett, Gustafsson, Deng, Mills-Koonce, & Cox, 2012; Hastings, Utendale, & Sullivan, 2007). The dearth of research on fathers stands in contrast to the contemporary shift toward men and women sharing more equality in parenting responsibilities (Bianchi & Milkie, 2010).

The current study utilizes a longitudinal sample of children, studied three times between 18 and 54 months of age, to investigate the reciprocal relations between paternal and maternal parenting and prosocial behavior in early childhood. Previous studies have used concurrent, cross sectional, or simple longitudinal models that either do not control for pre-existing prosocial behavior or do not allow for the examination of multiple cross-lag pathways. These simpler models are prone to bias due to the potential for spurious correlations, are ambiguous with respect to directionality of influence, and also confound stability and cross-lagged effects (Cook & Kenny, 2005). The current study examines reciprocal effects using longitudinal cross-lagged

panel models, a subtype of the actor-partner interdependence model (Kenny, Kashy, & Cook, 2006). It can therefore differentiate the role of parenting in child prosocial behavior from continuity in the constructs and from the role of child prosociality in parenting. Thus, the current design allows for better understanding of directionality of effects and intra-familial influences across time than can be achieved with cross-sectional data only (Cook & Kenny, 2005; Steele, Rasbash, & Jenkins, 2013).

Socialization and Prosocial Behavior

Parents may influence the frequency of prosocial behaviors among their children through effective parenting practices. Positive and warm parenting practices can promote prosocial behavior in two ways. First, warm and sensitive parenting may enhance the development of prosociality by promoting mutuality in caring behaviors between parent and child. Second, it can promote the development of prosociality by serving as a model for compassionate behavior that is intended to benefit another (Grusec & Davidov, 2010; Hastings, Utendale, et al., 2007).

Research studies mostly support the predicted positive relations between warm, positive parenting and prosocial behaviors (e.g., Carlo, 2014; Hastings, Utendale, et al., 2007; Padilla-Walker, 2014). For example, in a simple longitudinal study, maternal empathic parenting predicted altruistic acts among 15- and 20-month olds, over the course of nine months (Zahn-Waxler, Radke-Yarrow, & King, 1979). Maternal positivity and warmth at three and four years of age also predicted subsequent prosocial behavior at four and seven years of age in a cross lagged panel model (Knafo & Plomin, 2006). Interestingly, in a genetically-informative design, Knafo and Plomin (2006) demonstrated that the relations between maternal positivity and children's prosocial behavior can be attributed to shared environment factors. In support of the role of the shared environment, Jenkins, Rasbash, Leckie, Gass, and Dunn (2012), found that

32% of the variance in prosocial behavior between siblings in multi-dyad families is attributable to family membership and explained in part by family affective climate. In addition, within the differential parenting literature, it has been demonstrated that when one child is treated more positively than their sibling, the favoured child shows enhanced prosociality (Deater-Deckard et al. 2001; Jenkins et al., 2012).

Parenting in early childhood has been found to be directly important for the prediction of child outcomes (Sroufe, Coffino, & Carlson, 2010). For example, maternal sensitivity in the first three years of life predicted social competence between 54 months and 15 years of age, over and above concurrent parenting, demonstrating the enduring impact of maternal behaviour (Fraley, Roisman, & Haltigan, 2012). However, it has also been suggested that the association between early parenting and prosociality may be indirect, as early parenting may ignite processes of transaction between a child and the environment, which in turn may further promote prosociality (Sroufe et al., 2010).

Parents may also reduce the frequency of prosocial behavior among their children through negative parenting practices. That is, negative and harsh parenting practices are likely to deter children from prosociality, rather than encourage it. Negative forms of parenting may promote compliance to demands, but fail to scaffold and encourage the internalization of underlying prosocial standards (Grusec & Davidov, 2010). They may also induce fear, which in turn hinders learning of parental messages (Knafo & Plomin, 2006). Studies examining the relations between negative and harsh control and prosocial behavior have demonstrated negative or null relations between the variables (Carlo, 2014; Hastings, Utendale et al., 2007; Padilla-Walker, 2014). For instance, Laible, Carlo, Torquati, and Ontai (2004) failed to demonstrate associations between maternal harsh parenting and 6-year old children's concurrent social competence scores

(prosocial, autonomous, secure and calm behavior in peer relations). Another study demonstrated that maternal negativity at three, four, and seven years of age failed to predict subsequent prosocial behavior in a cross lagged panel model (Knafo & Plomin, 2006). However, the impact of negative parenting on prosocial behavior has been documented in the differential parenting literature. In a sibling comparison design, several studies have found that when mothers treated one sibling more negatively than the other, the recipient sibling was less likely to show prosociality (Deater-Deckard et al., 2001; Jenkins et al., 2012).

Parental versus Maternal Practices and Prosocial Behavior

Fathers' accessibility, responsibility, and engagement with children, as well as the quality of father-child interactions, have been found to have a substantial role in the development of children's emotions, cognitions and behaviors (Cabrera, Shannon, & Tamis-LeMonda, 2007). Fathers interact with children in ways that vary in warmth, support, or harshness, similarly to mothers (Cabrera, et al., 2007). In the last few decades, fathers have become increasingly involved in the socialization of children (Bianchi & Milkie, 2010). Nevertheless, the bulk of parenting research still focuses on the role of mothers in the development of children's behavior in general, and prosocial behavior, specifically (Carlo, 2014). Further, among the limited number of studies on paternal parenting and children's prosocial behavior, none focus on the preschool period when this developmental skill is unfolding. In the existing research on paternal parenting influences and adolescent prosociality, concurrent but not cross lagged relations have been documented. Carlo, Mestre, Samper, Tur, and Armenta (2011) studied the associations between fathers' use of warmth and strict control and the prosocial behavior of early adolescents across three years in a longitudinal design that does not control for the continuity within the constructs. These researchers found concurrent but not predictive relations, suggesting that paternal behavior

may not influence adolescent prosociality. In another cross-sectional study, behaviors such as maternal connectedness and involvement have been related to prosocial behavior in early adolescence; however, similar behaviors on the part of the fathers were not (Day & Paddilla-Walker, 2009). Lastly, in middle childhood, paternal sensitivity was longitudinally related to prosocial behavior, without controlling for previous continuity in the prosocial behavior, while maternal sensitivity was longitudinally related to prosocial behavior (without controlling for previous continuity in prosocial behavior), and concurrently related to it at the second time point (Newton, Laible, Carlo, Steele, & McGinley, 2014). Thus, it seems that paternal practices may be less strongly related to prosocial behavior than maternal practices (Hastings, McShane et al., 2007). As there is a paucity of research on the relations between the parenting of fathers and prosocial behavior in early childhood, and much of the existing research uses cross sectional designs, or designs that do not account for the continuity in the variables, additional studies are required to elucidate these associations (Padilla-Walker, 2014).

The Effect of Child Behaviors on Parenting

Modern theories of parenting increasingly conceptualize children as taking an active role in the shaping and evoking of their parents' behavior (Kuczynski, Pitman, & Mitchell, 2009). Children may influence their parents intentionally, as they operate as independent agents in the relationship, or unintentionally, due to their role as dependent subjects in the relationship (De Mol & Buysse, 2008; Kuczynski, et al., 2009). It is now well established that children's antisocial behavior may elicit negative parenting. For example, the externalizing behavior of four year olds was predictive of reduced subsequent maternal sensitivity at seven years of age (Wang, Christ, Mills-Koonce, Garrett-Peters, & Cox, 2013).

Despite ample recognition of the bidirectional nature of parent-child relations and interactions, reciprocal effects are rarely examined in empirical studies on prosocial development (Kuczynski, et al., 2009). This stands in contrast to theoretical accounts suggesting that if a child is cooperative and empathic, the parent of that child may be more apt to engage in warm and positive interchanges (Padilla-Walker, 2014). Drawing on the limited empirical research, it appears that prosocial behavior predicts maternal sensitivity (Barnett et al., 2012); however, these associations appear to operate in child-mother dyads, but may not operate in child-father dyads (Newton et al., 2014). Additional research is needed in order to explicate the potential contribution of children's prosocial behavior to the development of parents' positive and negative parenting.

Interparental Influences on Parenting Practices

The parenting behavior of one's spouse may influence the other spouse's parenting behavior. Parents may be similar in their parenting because of assortative mating, i.e., "likes attract likes" (Agrawal et al., 2006). It is also possible that spouses are more similar in their parenting due to social learning, in which one spouse emulates the other spouse's parenting behaviors. Moreover, parenting similarities can result from pre-planned, coordinated approach to parenting practices (Schofield et al., 2009). Only a few studies have examined the dual consistency of maternal and paternal parenting practices across time (Belsky, 1981; Schofield et al., 2009). These studies demonstrated that negative parenting and warmth towards adolescents was associated with subsequent negative parenting and warmth of the spouse, respectively. Moreover, the effect of fathers on mothers has been found to be similar to the effect of mothers on fathers (Schofield, et al., 2009). In early childhood, the slope of change in paternal parenting efficacy beliefs was related to the slope of change in maternal parenting efficacy beliefs, while

no such relations were found for overreactive parenting (Lipscomb et al., 2011). Last, intergenerational continuity in negative parenting from grandparents to parents disappeared when the parent's spouse had a warm and supportive relationship with their child (Conger, Schofield, & Nepl, 2012). Additional research may further clarify the potential role of a spouse's warm and negative parenting in the development of parents' warm and negative parenting during the early childhood years.

The Current Study

The primary goal of the current study is to investigate the reciprocal relations between paternal and maternal warmth, negativity and prosocial behavior. Based on the notion that warm parenting may promote prosocial behavior, while negative parenting is not associated with, or serves to hinder prosocial development (Padilla-Walker, 2014), we hypothesize that maternal warmth will predict increased subsequent prosocial behavior, while maternal negativity will not make a contribution to prosocial behavior. Importantly, we address a significant gap in research by examining the potentially important role of fathers in the promotion of prosocial behaviors in the preschool period. We hypothesize that the relations between paternal warmth and negativity will follow a similar pattern of relations to that of maternal warmth and negativity (Hastings, Utendale et al., 2007).

Hypotheses will be tested using an actor-partner interdependence model, which is especially suited to test these hypotheses. The actor-partner interdependence model contributes to the literature by investigating the mutual influences of one family member's behaviors in the development of another member's subsequent behaviors. This directionality of effects is identified by accounting for the effects of continuity in behaviors, and of relations between the participants' behaviors at previous time points. To our knowledge, these relations have not been

studied among preschool children in the context of prosocial behaviors. The existing studies have mostly used cross-sectional or simple longitudinal designs, which can not determine the directionality of effects, or distinguish the effects from continuity or confounds. Moreover, the existing studies are inconsistent, with some establish relations across time between parenting and prosocial behavior (e.g. Knafo & Plomin, 2006), while others only demonstrate relations within time (e.g. Carlo et al., 2011). The current study is particularly suited to disentangle discrepant findings in the literature, by determining the presence of directional relations between parental and child behaviors across time. Therefore, the current study may provide important information regarding reciprocal influences and family developmental processes.

We examine our hypotheses on a large, community based sample of children at three 18-month intervals over the preschool period (18, 36, and 54 months). We controlled for the role of gender in the relations between the variables, as gender was previously associated with prosocial behavior (e.g. Newton et al., 2014). As family status has been suggested, and socio-economic status has been found related to the development of prosocial behavior (Romano, Tremblay, & Swisher, 2005), we control for these variables, as well as parental education.

Method

Participants

All of the women giving birth to infants in the cities of Toronto and Hamilton between February 2006 and February 2008 were considered for participation. Families were recruited through a program called *Healthy Babies Healthy Children*, run by Public Health, which contacts the parents of all newborn babies within several days of birth. Approximately 34% of the mothers contacted agreed to participate in the study. Reasons for non-enlistment included inability to contact families, ineligibility once contacted and refusals. Five-hundred and one families were

enlisted into the Kids, Families and Places survey study when the infant was 2 months of age based on the following inclusion criteria: 1) English-speaking mother; 2) a newborn weighing at least 1500g; 3) one or more children less than 4 years old; and 4) agreement to the collection of observational and biological data. As the current study focused on development in early childhood, we included only the young sibling from each family. At time 2, when children were 18-months, 397 (79%) of the original 501 families were followed up, 385 (77%) were followed up at Time 3 when the child was 36 months, and 323 (65%) at Time 4 when the child was 54 months. As prosociality was not appropriate for measurement at 2 months of age, the current study focuses on the development between 18 and 54 months of age. Participants with data at the first 1 time-point were included in the analyses, leading to a final sample size of 381 families.

Of the 381 families, 360 were two-partner families, with 239 of the partners (66.3%) taking part in the study. 51.5% percent of the children were boys. Mothers averaged 34.54 years of age ($SD = 4.57$; range = 21-44) and 15.52 ($SD = 2.59$) years of education. Fathers averaged 37.82 years of age ($SD = 5.23$; range = 21-54) and 15.64 ($SD = 2.64$) years of education. Mean family income was between C\$75,000–84,999. Of participating mothers, 60.7% self-identified as being of European descent, 13.9% as South Asian, 6.3% as Black, 12.6% as East Asian and 6.5% as other. As reported elsewhere (Meunier, Boyle, O'Connor, & Jenkins, 2013), we compared our sample with the general population using 2006 Canada Census data. Families from the current study were similar to the Census data on family size, income, immigration status, and marital status, but were more educated (53.3% vs. 30.6% earned a bachelor degree or higher) and more likely to be partnered than those in the general population. The proportion of Canadian born versus immigrants to Canada was also higher in our sample (57.7% vs. 47.6%) than in the general population.

Procedure

Families were followed across four waves of data collection. Times 1 to 4 occurred when the child was a mean age of 2, 18, 36, and 54 months, respectively. At each time point, mothers, as well as fathers when available, participated in a home interview and completed paper and pencil measures about their neighborhood, family life, parenting behavior, and each participating child.

Measures

Demographics. Child age (in years), child gender (0 = male; 1 = female) and maternal and paternal education (in years) were entered as covariates. SES was a composite of family assets (i.e. house size, ownership status, cars etc.) and family income. Scores were standardized and averaged, with higher scores indicating higher SES ($\alpha = .68$).

Parent Reported Prosocial Behavior. Paternal and maternal reports of prosocial behavior were assessed using a version of the Prosocial Behavior Questionnaire (Weir & Duveen, 1981) adapted for use in the National Longitudinal Survey of Children and Youth (NLSCY, 1995). Parents rated the frequency of five behaviors, such as “shows sympathy to someone who has made a mistake” and “will try to help someone who has been hurt” on a three-point scale (never, sometimes, or often). Scores were averaged to create a composite score. Internal consistency at each time point was strong, for both fathers (α range = .82-.87) and mothers (α range = .80-.82). Father and mother reports of prosocial behavior were positively associated $r_{T1} = .39, p < .01, r_{T2} = .27, p < .01, r_{T3} = .36, p < .01$. In addition, father and mother reports of prosocial behavior were negatively associated with father and mother reports of disruptive behaviors (mothers: $r_{T1} = -.15, p < .01, r_{T2} = -.23, p < .01, r_{T3} = -.23, p < .01$; fathers: $r_{T1} = -.10, p = .02, r_{T2} = -.25, p < .01, r_{T3} = -.22, p < .01$. In previous studies, prosocial

development measured using the same scale has been associated with externalizing and internalizing problems (Nantel-Vivier, Pihl, Côté, & Tremblay, 2014).

Parent Reported Paternal and Maternal Warmth. Fathers and mothers completed the positivity scale from the National Longitudinal Survey of Children and Youth (NLSCY, 1995), which were originally adapted from the Parenting Practices Scale (Strayhorn & Weidman, 1988). Examples include: “How often do you speak to your child in a warm and friendly voice?” and “How often do you listen to your child’s feelings and try to understand them?” Parents rated five items for warmth on a five-point scale ranging from never (1) to almost always (5) and the mean across items was taken. The internal consistency was good at each time point for mothers (all α ’s $>.82$) and fathers (all α ’s $>.84$). Paternal warmth was positively associated across time, as was maternal warmth (r ’s $\geq .42$, p ’s $< .01$). Parental warmth measured using this scale has previously been negatively associated with child behavioral problems (Meunier, Bisceglia, & Jenkins, 2012).

Parent Reported Paternal and Maternal Negativity. Mothers and fathers completed the negativity scale from the National Longitudinal Survey of Children and Youth (NLSCY, 1995), which were originally adapted from the Parenting Practices Scale (Strayhorn & Weidman, 1988). Mothers rated five items for negativity, such as “How often do you complain about your child’s behavior or tell him/her you don’t like what s/he is doing?”, on a five-point scale ranging from never (1) to almost always (5) and the mean across items was taken. The internal consistency was good across each time point for mothers (all α ’s $>.82$) and fathers (all α ’s $>.83$). Paternal negativity was positively associated across time, as was maternal negativity (r ’s $\geq .38$, p ’s $< .01$). Father and mother reported warmth and negative parenting were negatively related across time (r ’s $\geq -.12$, all p ’s but one $< .05$). Parental negativity measured using this scale has

previously been positively associated with child behavioral problems (Meunier, Biscaglia, & Jenkins, 2012).

Treatment of Missing Data, Analysis Plan and Preliminary Analyses

Among mothers, the percentage of missing data ranged between 2% and 29%. Among fathers in the study, the percentage of missing data ranged between 12% and 18%. Little's MCAR test was not significant, for fathers $\chi^2(9) = 6.29, p = .71$, or for mothers $\chi^2(9) = 8.59, p = .47$, indicating that the variables were missing completely at random. We used the Full Information Maximum Likelihood method to account for missing data and added auxiliary variables to predict the patterns of missingness using Mplus 7 (Muthén & Muthén, 2010).

To test our hypotheses regarding the longitudinal relations between parenting and prosocial behavior, we performed actor-partner interdependence model (Kenny et al., 2006). The first model estimated the relations of maternal and paternal warmth, and the second used maternal and paternal negative parenting. All models used parenting variables centred across both parents (Kenny et al., 2006). The models included the autoregressive paths for warmth, negative parenting, and prosocial behavior, estimating the associations between parenting at time T and parenting at time T+1, as well as the associations between prosocial behavior at time T and prosocial behavior at time T+1. The models included the cross-lagged associations between paternal parenting at time T and maternal parenting and prosocial behavior at time T+1; the associations between maternal parenting at time T and paternal parenting and prosocial behavior at time T+1; and the associations between prosocial behavior at time T and paternal and maternal parenting at time T+1. Lastly, the model included correlations between the three constructs within each time point.

Using the χ^2 difference test, we compared models in which the relations were constrained

to equality across time and across parents to models in which the relations were allowed to vary freely. When the models were significantly different, we used partially constrained models to examine the specific paths that vary across times and reported a model constrained on all paths that do not vary significantly across times (Kline, 2011). All models controlled for family socioeconomic status (SES), parental education at T1, and for participants' sex and family status (married or cohabiting versus single parent family) at all time points.

The models were estimated in a subsample of families, in which both fathers and mothers participated ($N = 239$). The results in this subsample were similar to the results found in the full sample. The results are presented in the supplementary materials. In addition, we examined the role of interactions between paternal and maternal parenting and prosocial behavior. Neither interaction between paternal and maternal warmth, nor interactions between paternal and maternal negative parenting, predicted prosocial behavior significantly. We therefore report hereinafter the results for the full sample, and the parsimonious models with no interactions.

A combination of indices was used to determine the adequacy of the model fit, including the comparative fit index (*CFI*; Hu, & Bentler, 1999), root mean square error of approximation (*RMSEA*; Kline, 2011), and the standardized root-mean-square residuals (*SRMR*; Hu, & Bentler, 1999). Consistent with the literature, models resulting in a $CFI > .95$, $RMSEA < .06$ and $SRMR < .06$ were deemed an excellent fit, while models resulting in $CFI > .90$, $RMSEA < .08$ and $SRMR < .09$ were deemed an adequate fit (Schermelleh-engel, Moosbrugger, & Müller, 2003).

Results

Descriptive Statistics

Table 1 shows the means for study variables. Preliminary analyses indicated that there were no differences between girls and boys in parent reported parenting or prosocial behaviors at

T1-T3. Using repeated measures ANOVA and linear contrasts, children showed significantly higher levels of prosocial behavior across time, demonstrating a linear increase. Fathers reported similar levels of warmth across time and significantly higher levels of negative parenting across time. Mothers reported lower levels of warmth across time and significantly higher levels of negative parenting across time. The correlations among the study variables are presented in Table 2.

Longitudinal Relations between Parent Reported Paternal and Maternal Warmth, and Prosociality

The model for warmth in which paths were constrained to equality across time did not differ significantly from the model in which paths were allowed to vary freely across time, indicating that the associations between the same variables at different time points were similar $\chi^2(28) = 29.35, p = .39$. The model for warmth in which paths were constrained to equality between father and mother associations between all variables did not differ significantly from the model in which paths were allowed to vary freely between parents indicating that paternal warmth and maternal warmth were similarly associated to other constructs $\chi^2(3) = 2.59, p = .96$. The model for negative parenting that was constrained to equality of the paths across time differed significantly from the model in which paths were allowed to vary freely $\chi^2(25) = 47.16, p < .01$). Further analyses established that the paths indicating stability in maternal negativity varied across time. The final models were constrained on all other paths. The model for negativity in which paths were constrained to equality between father and mother associations between all variables did not differ significantly from the model in which paths were allowed to vary freely between parents indicating that paternal negativity and maternal negativity were similarly associated to other constructs $\chi^2(3) = 2.59, p = .46$.

The standardized path coefficients for the model on longitudinal relations between parent reported paternal and maternal warmth and prosocial behavior are displayed in Figure 1. The final model met standard criteria of good to excellent fit ($CFI = .93$, $RMSEA = .03$, $SRMR = .08$). Stability across time was found in the paternal and maternal warmth, as well as child prosocial behavior. Positive concurrent relations were found between paternal warmth, maternal warmth, and prosocial behavior, at all time points. Most importantly, and in line with the hypothesis, a cross lagged relationship was found between paternal and maternal warmth and subsequent prosocial behavior of children. The reciprocal cross-lagged relations between children's prosocial behavior and subsequent paternal and maternal warmth were not significant. Last, paternal warmth was associated with subsequent maternal warmth, and vice versa.

Significant indirect relations were found. Paternal and maternal warmth at 18 months of age was related to prosocial behavior at 36 months of age, which was in turn related to prosocial behavior at 54 months of age (indirect paternal $\beta = .01$, $p = .01$; indirect maternal $\beta = .02$, $p = .01$). Similarly, paternal and maternal warmth at 18 months of age was related to paternal and maternal warmth at 36 months of age (respectively), which was in turn related to prosocial behavior at 54 months of age (indirect paternal $\beta = .03$, $p = .02$; indirect maternal $\beta = .03$, $p = .02$). Interestingly, paternal warmth at 18 months of age was not related to prosocial behavior at 54 months of age via an association with maternal warmth at 36 months of age (indirect $\beta = .01$, $p = .12$). Maternal warmth at 18 months of age was also not related to prosocial behavior at 54 months of age via an association with paternal warmth at 36 months of age (indirect $\beta = .01$, $p = .12$).

The standardized path coefficients for the model on longitudinal relations between parent reported paternal and maternal negative parenting and prosocial behavior are displayed in Figure

2. The final model met standard criteria of good to excellent fit ($CFI = .95$, $RMSEA = .03$, $SRMR = .08$). Stability across time was found in the paternal and maternal negative parenting, as well as child prosocial behavior. Positive concurrent relations were found between paternal and maternal negative parenting. Maternal, but not paternal negative parenting was related to prosocial behavior negatively at all time points. Most importantly, no cross lagged relationship was found between paternal and maternal negative parenting and subsequent prosocial behavior of children. The reciprocal cross-lagged relations between children's prosocial behavior and subsequent paternal and maternal negative parenting were also not significant. Negative parental behaviors were associated with subsequent negative maternal behaviors, and vice versa. Last, no significant indirect relations were found between parenting and prosocial behavior.

Discussion

The current study utilized an actor-partner interdependence model to examine the reciprocal relations across time between the warmth and negative parenting of fathers and mothers and the prosocial behavior of preschoolers between 18 and 54 months of age. Warmth of mothers and fathers and prosocial behavior were concurrently related at all time points. In line with our hypothesis, warmth of fathers and mothers when the preschooler was 18 and 36 months of age were related to subsequent prosocial behavior. Concurrent associations between maternal negative parenting and child prosocial behavior were negative, and no longitudinal associations were found. Parental and maternal behaviors were associated across time, indicating inter-parental effects. The theoretical and empirical implications of these findings will each be discussed in turn, followed by a consideration of study limitations.

The Role of Parental Warmth and Negativity in the Development of Prosocial Behavior

In the current study, parental warmth was associated with child prosocial behavior. Our findings are consistent with previous research and establish the role of parental warmth in promoting child prosociality (Knafo & Plomin, 2006). However, the current study also strengthens and extends previous studies (Deater-Deckard et al. 2001; Zahn Waxler et al., 1979) through the use of an actor-partner interdependence model. Using this model, the current study identified the longitudinal role of warmth in the development of prosocial behavior, while mitigating the risks of spurious correlations, and differentiating the role of parental warmth from the reciprocal child effects, and from continuity in warmth or prosocial behavior (Cook & Kenny, 2005).

The three time point actor-partner interdependence model enabled the identification of indirect relations between early warmth and the development of prosocial behavior across time. Warmth at 18 months of age exerted an enduring effect over prosocial behaviour, at 36 and 54 months of age. These results establish the unique role of the early environment in setting the trajectories of development across time (Fraley et al., 2012; Sroufe, et al., 2010). Early childhood is characterized by high plasticity, and environmental influences were found to create long term biological changes (Shonkoff et al., 2012). This plasticity may account for the unique role of warmth at 18 months of age for the development of individual characteristics.

Concurrent associations demonstrated that the more negative the parental behavior, the less prosocial the behaviour of children. These associations parallel previous research within families: differential maternal negativity is associated with differential sibling prosociality in the expected direction (Deater-Deckard et al., 2001). Using a longitudinal design, we were able to go beyond the concurrent relations to examine the relations across time between negative parenting and prosociality. Neither paternal nor maternal negative parenting was related to subsequent

prosocial behavior.

A number of theoretical explanations can be suggested for the stronger role of positive versus negative parenting in fostering child prosociality. Parents may use mainly positive parenting practices, such as warmth, to foster prosociality, and avoid the use of negative parenting and punishment for that aim (Grusec, 1991). This choice of practices may also be rooted in parents' views of children's prosocial behavior as commendable, but not compulsory (Grusec, 1991). For example, parents judged assistance by their adolescents to be a choice, and not compulsory (Smetana et al., 2009). As a result, warmth and encouragement may be more frequent parenting practices for the socialization of prosociality than negative parenting. In addition, warm and sensitive parents may promote prosociality by serving as a model for caring and nurturing behavior. By behaving in line with this model, the children may learn to behave prosocially (Davidov & Grusec, 2010; Hastings, Utendale et al., 2007). Similarly, negative parenting may serve as a model for antisocial behavior across ages (Durrant & Ensom, 2012). Such modeling effects will make warmth more relevant to the socialization of prosocial behavior than negative parenting.

The Role of Fathers in the Development of Prosocial Behavior

A second aim of the current study was to examine the role of fathers in the socialization of prosocial behavior. Research examining the impact of fathers' behaviors on child prosocial development is scarce (Carlo, 2014), especially in early childhood. Attention to prosocial behavior in the early childhood is critical, not only because its development is rapidly unfolding, but also because young children's socialization agents (i.e., parents) can be more clearly identified. In addition, as previously detailed, parenting behavior in the early childhood period has a particularly strong and enduring influence on child development (Fraley, et al., 2012). This

may partially explain the discrepant findings between the current study, which demonstrated longitudinal effects of paternal warmth over prosocial behavior in early childhood, and previous research in the adolescence period that did not demonstrate such effects (Carlo et al., 2011; Day & Paddilla-Walker, 2009).

In the last few decades, the role division in households has shifted, and fathers have become increasingly involved in the socialization of children (Bianchi & Milkie, 2010). The impact of this shift in parental roles and responsibilities could be reflected in the current study, which demonstrated that fathers are influential in the positive socialization experiences of their children. Thus, fathers who choose to take part in the socialization of their young children may succeed in promoting child prosociality. This finding has important implications for prevention and intervention endeavours that seek to augment children's social competence. Traditionally, maternal caregivers have been the targets of interventions aiming to improve child developmental trajectories via enhanced parenting behavior (e.g., Landry, et al., 2012). The current study suggests that the behavior of both fathers and mothers should be targeted, and enhancement of their warmth and contingent responsivity could result in associated changes in children's social behaviors.

Interestingly, the actor partner interdependence models that examined the parallel role of mothers and fathers in the development of child prosocial behavior did not find any joint effects. Thus, the behavior of mothers and fathers did not interact in predicting child prosocial behavior. We also did not find joint indirect effects, in which paternal behavior mediate the effect of maternal behavior, or vice versa, on child prosocial behavior. The results indicate that the effects of mothers and fathers may be additive and independent. These results further emphasize the

importance of intervention with both fathers and mothers, as both parents may contribute to the development of children's prosociality.

The Reciprocal Effects of Children's Behavior on Parenting

The role of children's prosocial behaviors in eliciting parenting has rarely been examined (Kuczynski et al, 2009). To the best of our knowledge, only one previous study has examined the role of young children's prosocial behavior in eliciting parenting behaviors from mothers. Barnett et al., (2012) found longitudinal relations between the social competence of children and subsequent maternal sensitivity. Several aspects of their study were different from our own. For example, Barnett et al. did not statistically control for the covariance between the constructs within each time point. Using an actor-partner interdependence model in the current study, we did not find child effects on the parenting of fathers or mothers. Thus, the warmth and negative behavior of parents was not predicted by the previous prosocial behavior of their children. The current design is advantageous because it enables stronger conclusions about directionality of influence by accounting for previous relations between the variables, as well as continuity in each variable.

Importantly for the literature on reciprocity of parent-child interactions, our findings of no effect for child prosocial behavior on parental behavior stands in contrast to the established effects of child antisocial behavior on parental behavior (e.g., Wang et al., 2013). This difference may arise from the general principle of stronger psychological impact of negative events versus positive events. There is a tendency for individuals to attend to, remember, and assign importance to negative compared positive events. Accordingly, individuals were found influenced most strongly by the negative behaviors of relationship partners, and not their positive

behaviors. For example, a friend's criticism influences one's behavior more than a friend's praise (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001).

The Inter-parental Influences on Parenting Practices

The association between parents' parenting practices across time has rarely been examined (Belsky, 1981; Schofield et al., 2009). To the best of our knowledge, only one previous study has examined the role of spouses' warmth and negative parenting in the development of the other spouses parenting using an Actor Partner Interdependence Model (Schofield et al., 2009). However, the study by Schofield et al., (2009) was conducted during adolescence. A study conducted in early childhood found that the parenting of one spouse develops in response to the parenting of another. However, the study did not examine whether paternal parenting influenced maternal parenting or vice versa (Lipscomb et al., 2011). Using an actor partner interdependence model, the current study found reciprocal associations between fathers and mothers' parenting practices during early childhood. In line with previous studies (Conger et al., 2012; Schofield et al., 2009), we found no difference between the influence of fathers and mothers over each other's parenting practices. Previous studies suggested that fathers' parenting practices are more susceptible to environmental influences than those of mothers (Cabrera et al., 2000). The change in parental roles during the past decades (Bianchi & Milkie, 2010) may have been responsible to the equal role fathers take here in shaping the parenting practices within the household.

The Development of Prosocial Behavior and Parenting across Time

Prosocial behavior was found to increase linearly across time, between 18 and 54 months of age. Increases in frequency and variety of prosocial behaviors have been observed across early childhood (Carlo, 2014). However, the majority of previous research has examined this development cross-sectionally, comparing different groups of children at different ages

(Brownell, Iesue, Nichols, & Svetlova, 2013; Svetlova, Nichols & Brownell, 2010). The current study adds to the small number of longitudinal studies examining the frequency of prosocial behavior longitudinally (Knafo, Zahn-Waxler, Hulle, Robinson, & Rhee, 2008; Persson, 2005), demonstrating that as children mature, they engage in more prosocial behaviors. Statistically, this finding reduces the possibility that confounding effects might account for the mean differences in prosocial behavior frequency that were found in the previous cross-sectional studies.

In addition, the current study documented a decrease in the positive parenting of mothers, and an increase in the negative parenting of mothers and fathers, especially between 18 and 36 months of age. These behavioral changes in parenting coincide with a developmental period in which toddlers become increasingly autonomous and eager to gain independence. In parallel with these developmental changes toward greater self-sufficiency, parents come to expect increasing compliance from their children. As a result, increases in negative parenting have been observed in the child's second and third year of life (Pierce et al., 2010).

Limitations and Conclusions

Some limitations of this study should be considered. Although the actor partner interdependence model allows for stronger inferences regarding causality, it is still possible that unmeasured variables that covary with parenting and prosocial behavior were responsible for the measured relations. For example, shared genetic influences may account for both parental warmth and prosocial behavior. Experimental manipulations, such as interventions that promote warm and sensitive parenting (Landry, et al., 2012), may be used to further examine the causal relations between parenting and prosocial behaviors. In addition, all measures used in the current study were self and other report questionnaires. Mother and fathers self-reported their own parenting, and average maternal and paternal reports of child prosocial behavior were used.

Thus, the results may be prone to same-method bias. Studies using different measures of child behavior may be more likely to demonstrate child influences on parental behavior over time. At the same time, the study was strengthened by the inclusion of two reporters of child behaviour. Despite these limitations, this study provides fruitful insights into the development of prosocial behavior in early childhood within the family context. The study contributes to the literature by focusing on prosocial behavior development during early childhood (versus adolescence, e.g., Carlo et al., 2011) using an actor-partner interdependence model (versus more simplified models, e.g., Newton et al., 2014). We demonstrated herein that warmth of both fathers and mothers is an important predictor of child prosociality, in an additive fashion; that the role of child prosociality in eliciting parental behavior during early childhood may be limited; and that parenting behaviors are associated with the parenting of a spouse. These findings contribute to current theorizing on the dynamic relations between the behaviors of multiple family members.

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Table 1

Means and Standard Deviations of the Main Study Variables as a Function of Time

Variable	18 months		36 months		54 months		<i>F</i>	Cohen's <i>d</i> _{T1-T3}
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Positive parenting fathers	4.14	.55	4.17	.56	4.12	.50	.18	-.05
Positive parenting mothers	4.61	.40	4.50	.43	4.46	.46	22.16**	-.37
Negative parenting fathers	2.44	.54	2.66	.50	2.66	.49	14.12**	.47
Negative parenting mothers	2.46	.59	2.80	.48	2.80	.52	71.18**	.68
Prosocial behavior	2.22	.51	2.47	.38	2.55	.35	80.02**	.82

Notes. ** $p < .01$

Table 2

Correlations Matrix of the Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Warmth														
1. fathers T1	-													
2. fathers T2	.55**	-												
3. fathers T3	.57**	.59**	-											
4. mothers T1	.09	.07	.08	-										
5. mothers T2	.09	.18**	.20**	.40**	-									
6. mothers T3	.07	.16*	.26**	.42**	.49**	-								
Negative parenting														
7. fathers T1	-.16*	-.07	.01	-.03	-.10	-.13 [†]	-							
8. fathers T2	-.08	-.15	-.06	-.10*	-.08	-.11	.50**	-						
9. fathers T3	-.19	-.07	-.23**	-.19*	-.09	-.15*	.38**	.43**	-					
10. mothers T1	.00	.03	-.03	-.12*	-.23**	-.16*	.30**	.11	.27**	-				
11. mothers T2	.11**	.11	.11	-.08	-.19**	-.19**	.31**	.20	.33**	.47**	-			
12. mothers T3	.01	.11	-.02	-.09	-.18**	-.30**	.20**	.10	.24**	.41**	.55**	-		
Prosocial behavior														
13. T1	.17	.09	.06	.17**	.13*	.07	.01	.10	.03**	-.04	-.05	-.12 [†]	-	
14. T2	.18	.27**	.15 [†]	.18**	.21**	.13*	.03	-.10	-.03**	-.08	-.14**	-.13*	.28**	-
15. T2	.06	.15**	.11	.08	.03	.19**	.07	-.10	-.07	-.03	.02	-.10	.15**	.35**

Notes. [†] $p < .10$. * $p < .05$. ** $p < .01$. T1 = Time 1. T2 = Time 2. T3 = Time 3

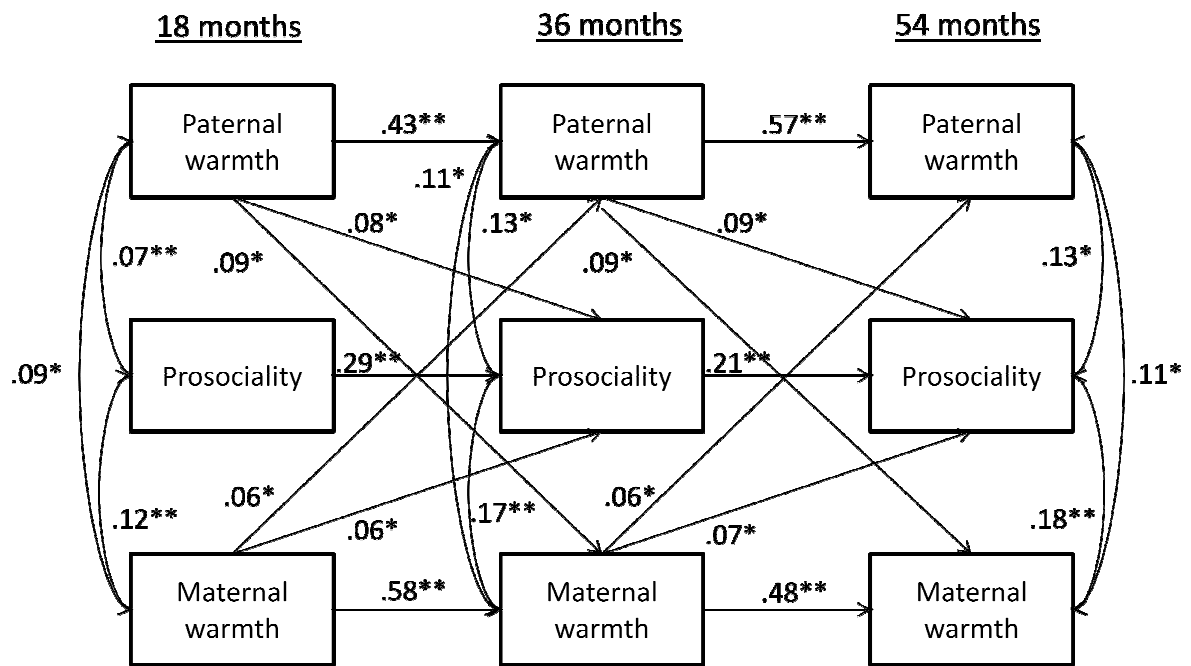


Figure 1. Standardized model results linking prosocial behavior, paternal and maternal positivity between 18- 36- and 54-months of age. The model is controlled for child sex, marital status, paternal education, and socioeconomic status. Only significant paths are shown. The full model is available from authors. $CFI = .94$, $RMSEA = .03$, $SRMR = .08$. * $p < .05$. ** $p < .01$.

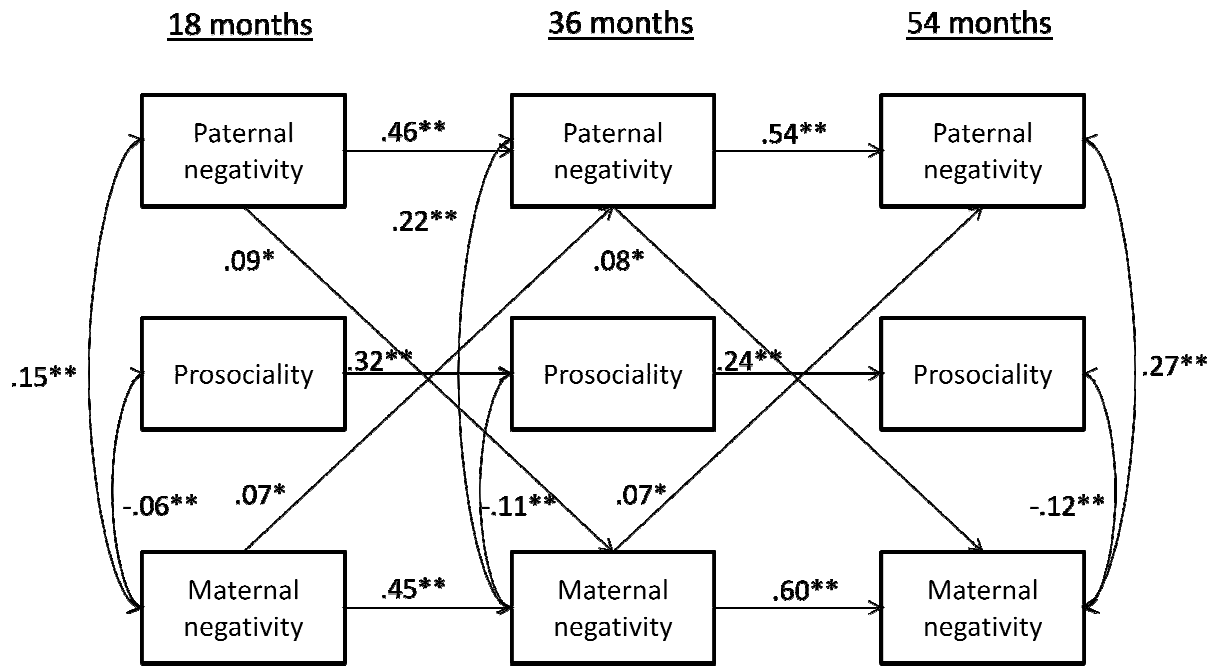


Figure 2. Standardized model results linking prosocial behavior, paternal and maternal negativity between 18- 36- and 54-months of age. The model is controlled for child sex, marital status, maternal education, and socioeconomic status. Only significant paths are shown. The full model is available from authors. $CFI = .95$, $RMSEA = .03$, $SRMR = .08$. * $p < .05$. ** $p < .01$.