Maternal Depressive Symptoms and Preschoolers' Helping, Sharing, and Comforting: The Moderating Role of Child Attachment

Bonnie E. Brett , Jessica A. Stern , Jacquelyn T. Gross & Jude Cassidy

Routledge
Taylor & Francis Group

Maternal Depressive Symptoms and Preschoolers' Helping, Sharing, and Comforting: The Moderating Role of Child Attachment

Bonnie E. Brett , Jessica A. Stern, Jacquelyn T. Gross, and Jude Cassidy

Department of Psychology, University of Maryland

ABSTRACT
Maternal depressive symptoms (MDS) are inconsistently associated with lower rates of child prosocial behavior. Studies typically examine prosocial behavior as a unitary construct rather than examining its multiple dimensions, and rarely consider how the quality of the parent-child relationship could influence this association.
Objective: The current study examines whether the security of the parent-child attachment relationship moderates the association between MDS and children's helping, sharing, and comforting behaviors.
Method: Participants were 164 low-income, majority African American mothers and their preschool-aged children recruited from Head Start centers. Mothers reported the frequency of depressive symptoms at baseline; child attachment security and helping, sharing, and comforting behavior were observationally assessed 5 to 8 months later.
Results: Moderation analyses revealed a positive main effect of security (but not MDS) on children's comforting behavior, a main effect of MDS on sharing, and no main effects of MDS or security on children's helping behaviors. Significant interactions between MDS and security predicted comforting and (marginally) helping behaviors, such that MDS were associated with both more helping and more comforting behavior only when children were more secure. No such interaction was observed for sharing.
Conclusions: These findings suggest that children may adapt to maternal depressive symptoms in prosocial ways, but that this depends at least in part on the quality of the parent-child relationship, underscoring the importance of examining attachment quality as a moderator of parental influences on children's social-emotional development. We discuss potential explanations for these findings, as well as their implications for intervention.

Prosocial behavior (PSB), or voluntary actions performed to benefit others (Eisenberg et al., 2015), is associated with favorable developmental outcomes in early childhood including more friendships, improved peer acceptance, higher academic achievement, and less loneliness (Asher & McDonald, 2009; Cassidy & Asher, 1992; Ladd et al., 1999). For this reason, understanding the factors that contribute to the development of prosocial behavior is a critical step on the path to understanding healthy social development.

Increasing attention has been paid to maternal depressive symptoms (MDS) as a predictor of reduced PSB in children. Theoretically, problematic parenting behaviors associated with MDS (e.g., hostility, disengagement, negative affect; Lovejoy et al., 2000) may contribute to the development of limited PSB in children through a variety of mechanisms, including interfering with children's development of empathy, a key contributor to some forms of PSB (Decety et al., 2015).

Indeed, research indicates that two facets of parenting that are typically associated with children's PSB – parental warmth and support – are negatively associated with MDS (Lovejoy et al., 2000; Spinrad & Gal, 2018).

Yet evidence for the link between maternal depressive symptoms and child PSB is mixed. Some studies find that increased parental depressive symptoms are associated with less PSB in children. For instance, Goelman et al. (2014) found that mothers' depressive symptoms were negatively correlated with a composite score (comprised of mother-, father-, and childcare caregiver-reports) of preschool children's PSB. Another study with 10- to 15-year-old children found that parents' depressive symptoms were associated with children's lower self-reported PSB (Elgar et al., 2007). Importantly, both studies found that the link between MDS and prosociality varied as a function of other aspects of the caregiving environment. In one study, high quality external childcare buffered children from

the negative association between MDS and PSB (Goelman et al., 2014). In the other study, the negative association between MDS and PSB was attenuated when parental nurturance was considered, with higher nurturance associated with higher PSB (Elgar et al., 2007). In contrast, two studies using a large Canadian sample found that high MDS were associated with higher levels of PSB but also with higher aggression (Nantel-Vivier et al., 2014; Romano et al., 2005). Together, these findings indicate that the link between MDS and PSB is likely complex and may be moderated by other aspects of the caregiving environment.

Given these findings, it is surprising that no studies examining the link between MDS and children's prosociality have considered how the quality of the parent-child relationship (frequently measured through child attachment security) may play a role in this link. A secure attachment is defined as one in which the child feels confident in the availability of the caregiver's support and availability in times of distress or need (Bowlby, 1969/1982). Conversely, an insecure attachment reflects a lack of this confidence; the child experiences the caregiver as inconsistently available or rejecting in times of need. That no studies examine attachment quality in this moderating role is striking because parental influences on children's social development often vary as a function of security. For example, research has demonstrated that parents' socialization of prosocial moral values is more effective among secure parent–child dyads, because secure children are more receptive to parents' socialization efforts (Kochanska et al., 2004). Moreover, theorists have proposed that early attachment may moderate the effect of contextual risks (such as MDS) on children's later development, such that secure children might be less adversely affected by such risks than insecure children (e.g., Kobak et al., 2006). Research supports the notion that secure attachments buffer children and adolescents from the negative outcomes associated with contextual risk factors generally (e.g., community violence; Houston & Grych, 2016) and parental risk factors specifically (e.g., harsh parenting; Cyr et al., 2014). A secure attachment in early childhood may even protect against the intergenerational transmission of depression in early adolescence (Milan et al., 2009).

The present study aims to examine whether security also moderates the link between MDS and PSB during the preschool period, a time when children face increased social demands and learn new regulatory and social skills. In addition, to more precisely understand the nature of these associations, the present study examines multiple forms of PSB in which children engage: (1) *helping*, or meeting another person's instrumental need to achieve an action goal; (2) *sharing*, or meeting another's material need through resource allocation; and (3) *comforting*, or meeting another's emotional need to alleviate distress (Dunfield, 2014). Evidence supports the claim that these varieties of PSB have unique developmental trajectories, parenting antecedents, motivations, and neurophysiological underpinnings (Brownell et al., 2013; Dunfield, 2014; Dunfield & Kuhlmeier, 2013; Paulus, 2018; Paulus et al., 2013; Pettygrove et al., 2013; Steinbeis, 2018). For example, helping behavior is observed most frequently in young children and emerges earliest in ontogeny at approximately 14 months (Warneken & Tomasello, 2006), followed by sharing, which emerges later in the second year and becomes increasingly frequent from 18 to 24 months (Brownell et al., 2013); comforting appears to develop later due to its reliance on more complex understanding of others' emotional states (Dunfield & Kuhlmeier, 2013; Radke-Yarrow, Zahn-Waxler, Barrett, et al., 1976; for further discussion, see Dunfield, 2014). Moreover, these forms of prosociality are often not correlated with each other within the same study (e.g., Dunfield & Kuhlmeier, 2013), though sometimes they are (e.g., Beier et al., 2019). Therefore, it is important to examine the effects of MDS on multiple forms of PSB, as effects may not generalize across all types.

Both theory and research indicate that of these three types of PSB, attachment security most likely plays a role in children's comforting behavior. Secure children tend to have positive mental representations of others as worthy of comfort and of themselves as competent to provide comfort, and these representations may motivate the wish to comfort others when they are distressed (e.g., Shaver et al., 2016). Moreover, children with a history of sensitive care (i.e., secure children) possess an implicit script, known as a *secure base script*, of how comforting situations typically unfold: The distressed individual elicits help, a caregiver recognizes the bid for help and sensitively responds in a way that alleviates the distress, and the individual is able to resume prior activities (Waters & Waters, 2006). The secure base script is thought to motivate and guide secure individuals' comforting in response to others' distress, because they know when comfort is needed and how to provide it effectively (Stern & Cassidy, 2018; Waters & Waters, 2006). Importantly, as recipients of sensitive care, secure children learn both sides of the secure base script, so that when children are faced with the distress of another person, this knowledge facilitates their ability to play the role of the comforter. It is possible that when children with this secure base script are given the opportunity to more regularly practice comforting another person at home (as might be the case when a parent experiences frequent distress or depressive symptoms), the script may be more readily accessible or more

successfully executed outside the home. In addition, because comforting is a complex form of PSB requiring multiple underlying competencies, the links between secure attachment and some of these competencies may contribute to a link between security and comforting. For example, secure attachment serves as a foundation for children's effective emotion regulation (Brumariu, 2015; Cassidy, 1994; Cooke et al., 2016), a skill necessary to remain calm and provide comfort when faced with another's distress and potentially, with maternal distress (e.g., Eisenberg et al., 2006). In summary, the competencies and protection from risk factors that characterize secure children may change the nature of the connection between MDS and child comforting. Specifically, child attachment security may serve as a buffer against the potentially negative influence of MDS on the development of comforting behavior.

There are fewer reasons to hypothesize that security might moderate the link between MDS and other aspects of PSB (i.e., helping or sharing), but this interesting research question bears examination. One possibility is that security moderates the link between MDS and all three forms of children's PSB in similar ways – perhaps in the case of helping, sharing, and comforting alike, a secure attachment relationship provides a buffer against the potentially negative consequences of developing in an environment characterized by MDS. This possibility is supported by theory grounded in attachment research that when children have positive mental representations of themselves and others (as secure children do), they may be more prosocially motivated in general (Gross et al., 2017), despite competing and potentially negative external influences (such as having a depressed parent). Although there is little empirical evidence for this theory, studies have found that child attachment security was positively related to children's sharing, helping, or both (e.g., Beier et al., 2019; Paulus et al., 2016). Alternately, child security may moderate the link between MDS and some types of PSB, but not others. Given that each form of PSB examined here is thought to involve distinct social-cognitive skills and underlying motivations (Dunfield, 2014; Paulus, 2018), it is likely that there are subtle differences in both the effects of MDS on each, and the role that child attachment security might play in moderating these effects.

The Current Study

The current study aims to longitudinally explore whether the links between MDS and specific types of child PSB (i.e., helping, sharing, and comforting) vary as a function of the quality of the parent-child attachment relationship. In a sample of low-income, majority African American

mothers and their preschool children (a population at increased risk for maternal depression and insecure child attachment; Bakermans-Kranenburg et al., 2004; Chung et al., 2004), we assessed self-reported MDS at Time 1 (T1); five to eight months later (T2), we observed child attachment security in the Preschool Strange Situation Procedure (Cassidy et al., 1992) and children's helping, sharing, and comforting behavior toward an unfamiliar adult in 9 laboratory tasks.

In relation to comforting, we hypothesized that: (a) children with mothers reporting greater depressive symptoms at T1 would comfort less at T2, and (b) this link would be moderated by the quality of mother-child attachment, such that the negative link would be attenuated among more secure children. In relation to helping and sharing, we hypothesized that (c) children with mothers reporting greater depressive symptoms at T1 would help and share less at T2. We had no hypotheses about whether child security would moderate these links, given the paucity of previous theoretical and empirical work on this topic; thus, these analyses were exploratory.

Method

Participants

Participants were 164 mother-child dyads recruited from Head Start centers in Baltimore, MD to take part in a randomized controlled trial of a 10-week attachment-based parenting intervention (see Cassidy et al., 2017 for inclusion criteria, a description of the intervention, and detailed attrition information). Parents were recruited through flyers and center staff. They were paid for their time at the baseline and outcome visits and for sessions attended during the intervention. Mothers were consented in groups or by center staff individually and children were asked to take part in the outcome assessment. Of those 164 enrolled mothers, 23 were lost to follow-up and a further 4 had incomplete data due to technical failures or experimenter error during the outcome assessment. Participant characteristics are found in Table 1.

Procedure

At baseline (T1), mothers reported on their depressive symptoms as part of a larger set of questionnaires that also included demographic questions. Mothers were then randomly assigned to either the intervention group ($n = 91$) or a wait-list control group ($n = 73$). Then, following a 10-week intervention/waiting period, 141 dyads attended a 90-minute laboratory outcome visit approximately 4–6 months after the initial baseline

Table 1. Descriptive statistics of key study variables.

	n (%)	M (SD)	Range
Mothers			
Maternal Depressive Symptoms		.89 (.61)	0 – 2.4
Age (years)		29.68 (6.35)	18 – 48
Education			
Some High School	31 (19%)		
High School Degree/GED	75 (46%)		
Associate Degree	5 (3%)		
Some College	44 (27%)		
4-year Degree	2 (1%)		
Advanced Degree	4 (2%)		
Marital Status			
Married	26 (16%)		
Steady Relationship	68 (42%)		
Single	69 (42%)		
Race/Ethnicity			
Black	124 (76%)		
White	20 (12%)		
Other	12 (7%)		
Children			
Attachment Security		4.99 (1.70)	1 – 8
Comforting		2.52 (1.09)	1 – 5
Sharing		5.32 (1.64)	1 – 7
Helping		4.89 (1.09)	1 – 6
Age (years)		4.32 (.51)	3 – 5
Sex			
Girl	96 (59%)		
Boy	65 (40%)		
Race/Ethnicity			
Black	105 (64%)		
White	7 (4%)		
Other	24 (15%)		

For some variables, the percentages do not total 100% because of missing data: for maternal education, n = 3; for maternal marital status, n = 1; for maternal race, n = 8; for child sex, n = 3; for child race, n = 28. For race, mothers could indicate more than one. These responses are counted as "other."

assessment (T2). Transportation and childcare for siblings were provided as needed.

At the beginning of the visit, child security was assessed in a large playroom. Mothers then left the playroom to complete the same questionnaires they had completed at baseline. Children remained in the playroom with a single female experimenter for the remainder of the visit. Prosocial scenarios were interspersed between other social-cognitive tasks (i.e., executive functioning, attribution bias interviews) that were part of a separate study. Both the attachment assessment and the child's responses to the prosocial scenarios were video recorded for later coding.

Measures

Maternal Depressive Symptoms

Maternal depressive symptoms were assessed using the Center for Epidemiological Studies – Depression scale (CES-D; Radloff, 1977), a 20-item questionnaire in which mothers are asked to report how often they experienced depressive symptoms in the past week. Responses are on a 4-point scale, with 0 indicating that a symptom was rarely or never experienced and 3 indicating that it was experienced most or all of the

time. Sample items include: "I felt that everything I did was an effort" and the reverse scored "I felt hopeful about the future." Scores were calculated as the mean of all items, with higher scores indicating more MDS ($\alpha_{T1} = 0.91$, $\alpha_{T2} = 0.91$). The CES-D is both reliable and valid and is regularly used with both clinical and non-clinical populations (Beekman et al., 1997; Clark et al., 2002; Radloff, 1977, 1991).

Child Attachment Security

The Preschool Strange Situation (Cassidy et al., 1992) was used to assess child attachment security. In this standardized 20-minute procedure, dyads entered a toy-filled room and the mother was instructed to sit in a chair near the toys while the child freely explored for three minutes. This was followed by two mother-child separations (3 and 5 minutes, respectively), each followed by a 3-minute reunion. This measure is widely used and has excellent psychometric properties (for a review, see Solomon & George, 2016).

Security scores, ranging from 1 to 9, largely reflect the child's behavior during reunions. High scores indicate warm, intimate reunions characterized by re-engagement with the parent including either close, physical contact or enthusiastic and responsive conversation. Low scores can reflect limited re-engagement, including low proximity and neutral behavior, immature behavior and resistance to re-engagement, or controlling or disorganized behavior (e.g., freezing). One coder coded all cases; a second coder coded 26% of randomly selected cases for reliability (ICC =.89; $p < .001$). Both were masked to information about the dyad, and disagreements were resolved through conferencing.

Child Prosocial Behavior

Helping, sharing, and comforting behaviors were assessed by coding child reactions during nine scenarios in which the child had the opportunity to behave prosocially toward a single experimenter (three scenarios each for helping, sharing, and comforting, occurring in two randomly assigned sequences). Scenarios and timing were adapted from previous work examining PSB in preschoolers (e.g., Dunfield & Kuhlmeier, 2013). Helping and comforting scenarios occurred while the child was engaged in an independent activity; sharing scenarios occurred after distribution of resources to the child and experimenter.

Scenarios. In each of the three helping scenarios, the experimenter attempted an action (e.g., opening a door) but was thwarted by circumstance (e.g., her arms were full of boxes), creating an opportunity for children to instrumentally help her to complete her

goal. In each of the three sharing scenarios, the experimenter distributed resources to the child (e.g., multiple balloons), then discovered that there were none left for her (e.g., hers had deflated), giving children the opportunity to address her material need by sharing. In each of the three comforting scenarios, the experimenter became distressed after accidentally damaging a possession (e.g., spilling water on a drawing) or hurting herself (i.e., bumping her knee), creating an opportunity for children to attend to her emotional need through words or actions.

Expressed experimenter emotion varied across prosocial opportunities. During helping scenarios, she expressed little emotion (e.g., mild frustration), during sharing scenarios she expressed moderate emotion (e.g., sighing and frowning), and during comforting scenarios she expressed clear negative emotion (e.g., moaning and whimpering). In each scenario, the experimenter's need became increasingly obvious, beginning with nonverbal cues and ending with a direct request for need fulfillment, in order to allow more opportunities for all children to act prosocially. The duration of the scenarios varied based on previous work and expectations of preschoolers' responses (30 seconds for helping, 45 seconds for sharing, and 120 seconds for comforting; Dunfield & Kuhlmeier, 2013). At the end of each scenario and regardless of the child's response, the experimenter expressed verbally that the situation was resolved and returned to a positive-neutral baseline mood.

Coding. Helping, sharing, and comforting scores were derived from children's behavior by trained coders. Using both the considerations of previous researchers (e.g., Dunfield & Kuhlmeier, 2013; Edwards et al., 2014) and observations of typical child behavior during pilot testing, we created a coding manual for each type of PSB. Scores reflected both the speed (e.g., how explicit a cue was required before the child acted) and quality (e.g., successful completion, varied attempts) of the prosocial behaviors.

At least 37% of helping and sharing scenarios and 71% of comforting scenarios were double-coded. More coders rated comforting scenarios given the complexity of children's potential responses. Whereas helping and sharing scenarios could be resolved by specific, concrete actions, comforting took many forms with varying degrees of effort and effectiveness. Coders were masked to additional information about the children and disagreements were resolved by conferencing. See Beier et al. (2019) for more information about task protocols and coding.

Helping. Scores ranged from 1 to 6 and reflect the presence and speed of helping behavior. Children who helped received a score of 5 or 6, whereas children who did not help but offered solutions or acknowledged the problem received scores from 2 to 4. Children who did not help or engage at all with the situation received a score of 1. Intercoder reliability for the three scenarios was high (.93 < Krippendorff's alphas < .99). A child's scores for all three scenarios were averaged to create a Global Helping Score.

Sharing. Scores ranged from 1 to 7 and reflect the speed of sharing and the amount of resources shared. Children who shared received a score of 5 or higher, whereas children who indicated a willingness to share without doing so received scores from 2 to 4. Children who did not share or engage with the situation received a score of 1. Intercoder reliability for all scenarios was high (all Krippendorff's alphas = .98). A child's scores for all three scenarios were averaged to create a Global Sharing Score.

Comforting. Scores ranged from 1 to 5 and reflect the latency, diversity, persistence, and appropriateness of comforting behavior, as well as the child's apparent concern about the situation. Comforting behaviors included physical (e.g., hugs, pats) and verbal (e.g., "It's ok! You can make another!") attempts to soothe the experimenter, as well as attempts to fix the problem (e.g., wipe water off the drawing). Indirect behaviors such as suggestions for how to resolve the situation and offers to help were also considered supportive responses following prior research (e.g., Edwards et al., 2014). Other behaviors reflected in the score included concerned attention toward the situation and proximity to the experimenter. Negative behaviors such as mocking or laughing decreased scores by 1 point. Higher scores reflect more appropriate, rapid, and effortful comforting behavior. Children who either provided physical comfort (e.g., a hug) or engaged in a combination of rapid, diverse, or persistent comforting strategies received a score of 5. Children who made minimal attempts to comfort with little or no apparent concern received a 1. Intercoder reliability was high for all scenarios (.81 < Krippendorff's alphas < .94). A child's scores for all three scenarios were averaged to create a Global Comforting Score.

Data Analytic Plan

First, we conducted preliminary analyses of the observed sample using SPSS version 25. Specifically, we calculated descriptive statistics and examined bivariate correlations to determine appropriate covariates for each model (see Table 2 for the correlation matrix of all study variables and Table 1 for descriptive statistics). Then, considering that approximately half of the

Table 2. Correlation matrix of study variables.

	1	2	3	4	5	6	7	8	9	10	11
1. MDS	-										
2. Child attachment security	.09	-									
3. Child comforting	.10	.21*	-								
4. Child sharing	.18*	.18*	.42**	-							
5. Child helping	.13	.13	.26**	.42**	-						
6. Child age	−.01	.06	−.02	.04	.12	-					
7. Child sex	−.05	−.23**	.13	.06	.13	−.11	-				
8. Child race	.04	.02	.10	−.01	−.29**	−.01	−.06	-			
9. Mother race	.10	.07	.07	−.04	−.20*	.04	−.07	.80**	-		
10. Mother marital status	.001	.05	.02	−.06	−.12	.04	.14	.12	.11	-	
11. Mother age	.11	.10	.05	.02	.03	.11	.02	.04	.12	.18*	-
12. Mother education	−.29**	.02	.14	.01	−.01	.07	.04	−.13	−.17*	.04	.06

*$p < .05$; **$p < .01$; Mother and child race and mother marital status and education were dichotomized; MDS = Maternal depressive symptoms.

mothers had been randomly assigned to receive a parenting intervention during the weeks between T1 and T2, we conducted analyses to determine whether intervention status was related to any study variable (i.e., mothers' depressive symptoms, child attachment security, child prosocial behavior) and whether intervention status moderated the relation between MDS and child prosocial behavior.

Second, to investigate whether child security moderated the link between MDS and child prosocial comforting, sharing, and helping, we analyzed data with multiple regression using Mplus version 6.12 (Muthén & Muthén, 1998–2012). Three models were run, in which MDS, child security, and their interaction predicted each prosocial behavior outcome. We used an iterative process to determine our final model where non-significant interactions were removed and models were rerun without them. Significant and marginally significant interactions were probed using simple slopes analysis (e.g., Aiken & West, 1991). We report the unstandardized path coefficients, standard errors, p-values, and bootstrapped confidence intervals for each of our models. (We also ran a combined model in which all three prosocial outcomes were put into the same path analysis in order to account for the inter-relations among them; the pattern of results did not differ from those of the separate models. Results from this combined model are reported in Supplemental Materials.)

Third, because mothers provided information about MDS at both T1 and T2 (before and after the intervention), we also ran all primary analyses using T2 MDS (see Supplemental Materials).

Results

Preliminary Analyses

Covariates
Covariates for each regression model were all demographic variables that were significantly correlated with the outcome variable (i.e., mother and child race and age,

child sex, mothers' education level, and mothers' marital status). All categorical demographic variables (e.g., race, mothers' education, and marital status) were dichotomized for ease of interpretation. Mothers' race and children's race (African American or non-African American) were correlated with children's helping score, such that African American children demonstrated greater helping than non-African American children.

Missing data
Of the 164 eligible mother-child dyads, 23 did not participate in the outcome assessment, so did not provide child outcome data (i.e., attachment security and PSB). In addition, four children did not have security scores and one child did not have PSB scores due to technical error or child refusal. Participants who attended the outcome assessment did not significantly differ on any baseline or demographic variables from those who did not attend (see also Cassidy et al., 2017 for information about participant attrition). Following Mueller and Hancock (2010), we used full information maximum likelihood estimation (FIML) to estimate missing scores; thus, principal analyses were performed on the full sample of 164 dyads.

Missing items on the CESD were rare (.004% were missing across all participants). For mothers missing CESD items, we substituted their mean scale score for the missing item(s). This method, which is equivalent to averaging available data, has been found to be statistically sound (Schafer & Graham, 2002). No mothers were missing more than .10% of items.

Parenting intervention
Considering that approximately half of the mothers had been randomly assigned to receive a parenting intervention during the weeks between T1 and T2, we first examined whether intervention status played a role in our model or influenced the outcome variables. Children of mothers in the intervention treatment group did not differ in attachment security or extent of PSB from

children of mothers in the control group (all $ts < 1.11$, $ps > .271$). In addition, mothers in the intervention group did not differ in terms of depressive symptoms at T1 or T2 from mothers in the control group (both $ts < 0.40$, $ps > .688$; and see Supplemental Materials for descriptive statistics and correlations in the treatment and control groups). Tests of associations between MDS and children's PSB conducted with intervention status as a moderator revealed only one potential interaction (out of three interactions tested): there was a marginally significant interaction between MDS and intervention status in predicting sharing behavior, $b = -.86$, $SE_b = .44$, $p = .054$, 95% CI [−1.74, .02]. Therefore, the interaction of MDS and intervention status and the three- way interaction of MDS, security, and intervention were included in the model predicting children's sharing; results from all interactions are reported.

Principal Analyses

Analyses are reported here using T1 MDS scores; results from analyses using T2 MDS scores as the predictor did not change significantly (except as noted below; and see Supplemental Materials). All models were just identified.

Child comforting

The main effect of attachment security on child comforting was significant, but the main effect of MDS was not (see also Beier et al., 2019). However, this main effect was moderated by a significant interaction between security and MDS (Table 3).

To probe the significant interaction, we used simple slopes analysis (e.g., Aiken & West, 1991) to determine at which values of the moderator (security) there is a significant link between the predictor and the outcome.

The results indicated that MDS were positively related to child comforting for children with a security score of at least 1 standard deviation above the mean, $b = .51$, $SE_b = .22$, $p = .020$, 95% CI [.08, .94], but unrelated to child comforting for children with security scores below this point (Figure 1).

Child sharing

Because there was a significant interaction between intervention status and MDS in predicting children's sharing, intervention status was included as a second moderator in this model. The three-way interaction between MDS, child security, and intervention status was also included but was not significant, $b = .10$, $SE_b = .26$, $p = .701$, 95% CI [−.39, .63]; thus, it was removed from the model (model Akaike Information Criterion value [AIC] = 2332.81; lower values indicate better fit). In a simplified model with only the two-way interactions (model AIC = 2117.32), the interaction between security and MDS was not significant, $b = -.03$, $SE_b = .11$, $p = .778$, 95% CI [−.25, .20], but the interaction between intervention status and MDS was marginally significant, $b = -.82$, $SE_b = .43$, $p = .054$, 95% CI [−1.64, .02].

After removing all non-significant interactions to simplify the model, a final model was run with only the interaction between intervention status and MDS (model AIC = 1704.53). In this final model, the main effect of security on children's sharing was marginally significant, and the main effect of MDS on children's sharing was significant (Table 3; see also Beier et al., 2019). In addition, the interaction between intervention status and MDS was significant so we probed using simple slopes analysis. The results indicated that MDS were positively related to children's sharing among children in the control group only, $b = .80$, $SE_b = .25$, $p = .001$, 95% CI [.33, 1.29], but unrelated to sharing among children in the intervention group,

Table 3. Final regression models examining the link between T1 maternal depressive symptoms and child helping, sharing, and comforting, moderated by attachment security.

Outcome	b	SE_b	z	p	95% CI	b_{StdYX}	R^2
Comforting							.10
T1 MDS	.14	.15	.97	.334	[−.15, .43]	.08	
Attachment Security	.12	.05	2.27	.023	[.02, .23]	.19	
Interaction (MDSxSec)	.22	.08	2.70	.007	[.06, .37]	.22	
Sharing							.09
T1 MDS	.80	.25	3.26	.001	[.33, 1.29]	.30	
Attachment Security	.14	.08	1.83	.068	[−.02, .29]	.15	
Intervention Status	−.29	.27	−1.09	.275	[−.82, .24]	−.09	
Interaction (MDSxIS)	−.79	.39	−1.99	.046	[−1.57, −.01]	−.20	
Helping							.17
T1 MDS	.24	.13	1.88	.060	[−.02, .48]	.13	
Attachment Security	.06	.05	1.10	.270	[−.05, .17]	.09	
Interaction (MDSxSec)	.13	.07	1.81	.070	[−.01, .27]	.13	
Maternal Race	.34	.40	.85	.395	[−.50, 1.08]	.12	
Child Race	−1.13	.38	−2.95	.003	[−1.85, −.33]	−.44	

MDS = Maternal depressive symptoms; CI = Confidence interval; Sec = Child attachment security; IS = Intervention status.
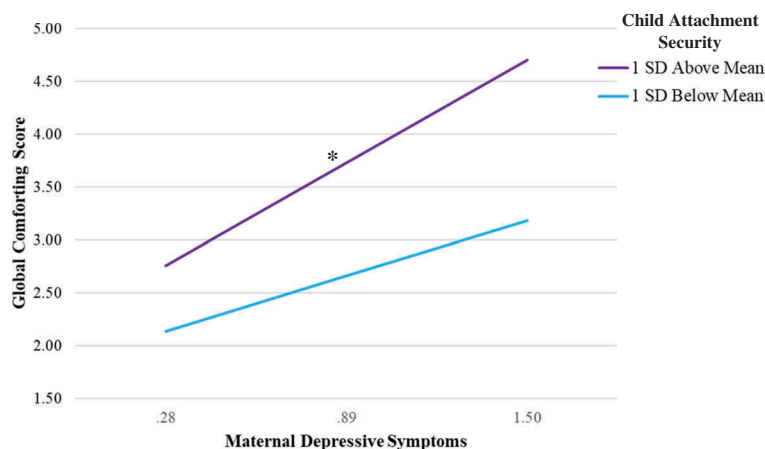
Figure 1. Effect of maternal depressive symptoms on children's global comforting score, moderated by child attachment security. * indicates slope that is significantly different than zero.

$b = .01$, $SE_b = .32$, $p = .968$, 95% CI [−.63, .61]. Using T2 MDS as the predictor, the interaction between intervention status and MDS was not significant (nor were any other interactions; see Supplemental Materials).

Child helping

A marginally significant interaction emerged between security and MDS in predicting children's helping behavior, $b = .13$, $SE_b = .07$, $p = .070$, 95% CI [−.01, .27]. We therefore explored this interaction using a simple slopes analysis. The results indicated that MDS were positively related to children's helping among children with a security score of at least 1 standard deviation above the mean, $b = .46$, $SE_b = .16$, $p = .005$, 95% CI [.13, .77], and marginally positively related when children were at the mean, $b = .24$, $SE_b = .13$, $p = .060$, 95% CI [−.02, .48], but were unrelated to helping for children with security scores below this point. The main effect of security on children's helping was not significant, but the main effect of MDS was marginally significant (see Table 3; see also Beier et al., 2019). Using T2 MDS as the predictor, neither the interaction nor the main effects were significant (see Supplemental Materials).

Discussion

The development of humans' capacity to care for others is complex, involving interactions among the child, the caregiving environment, and the broader bioecological context (Bronfenbrenner, 2005; Gross et al., 2017; Eisenberg, 2017). The current study examined the contributions of two dimensions of the caregiving environment – maternal depressive symptoms (MDS) and parent–child relationship quality (attachment security) – to specific types of PSB

(comforting, helping, and sharing) in preschool. In this sample of low-income, majority African American families, we found evidence for a contribution of MDS to children's prosocial behavior, but results varied by the specific type of prosocial behavior and by the quality of children's attachment. Specifically, MDS predicted greater *sharing* behavior, regardless of attachment security. For *comforting*, however, the contribution of MDS was moderated by attachment: MDS predicted greater comforting behavior when security was high; at moderate and low levels, this link was not significant. Similarly, there was a marginally significant interaction for *helping*, in which MDS predicted greater helping behavior when security was high; no effects emerged at moderate and low levels of security.

This study is the first to test attachment as a moderator of effects of MDS on specific types of children's PSB. Strengths of the study include the use of a gold standard behavioral measure of young children's attachment, behavioral observation of multiple scenarios to assess each type of PSB, the longitudinal design, and the focus on an underrepresented population of low-income, majority African American mothers and children. We discuss the findings in context of previous work, and then outline study limitations and avenues for future research.

Mothers' initial levels of depressive symptoms did not predict lower child PSB in any domain (comforting, helping, sharing), contrary to predictions and some (e.g., Elgar et al., 2007; Goelman et al., 2014) but not all (Nantel-Vivier et al., 2014; Romano et al., 2005; for related findings see Frankel et al., 1992) previous work. Importantly, most previous work examined links between MDS and questionnaire measures of general child prosociality, which may lack specificity and be subject to potential reporter bias (especially when

mothers are included as reporters of both MDS and child prosociality; e.g., Goelman et al., 2014). Thus, it is possible that MDS-related deficits do not emerge when child prosociality is assessed via observer ratings of specific types of behavior toward an experimenter; indeed, it is possible that previous findings linking MDS to lower *mother-reported* PSB may be due in part to maternal depressive cognition shaping more negative perceptions of child behavior. Alternately, results may be due to differences in sample characteristics, as no previous work on this topic has focused on low-SES, majority African American families. For example, in a middle class, majority White sample, parent depressive symptoms predicted less nurturant parenting behavior, which in turn predicted lower child PSB (Elgar et al., 2007). It is possible that in low-SES, African American families, depressive symptoms influence parenting behavior differently, or that other factors (e.g., social support from extended family members) may buffer such effects.

Moreover, prior work suggests that the relation between parental depressive symptoms and child PSB is complex. For example, in middle childhood, two studies in a large Canadian sample showed that parents' depressive symptoms predict profiles of child behavior characterized by both greater overall PSB *and* greater behavior problems, assessed via parent and child report (Nantel-Vivier et al., 2014; Romano et al., 2005). This suggests that parent depressive symptoms may predict patterns of child social-emotional development characterized by both adaptation and dysregulation, which bear on PSB in sometimes unexpected ways.

To make sense of conflicting previous findings, as well as our own unexpected findings, it is important to examine child PSB with greater specificity to understand how different components of PSB may be influenced by MDS in different ways, and to evaluate potential moderators of such influence. In the present study, we observed a significant main effect of MDS only on sharing, with MDS predicting children's greater sharing behavior, and the effect did not vary by child attachment security (this main effect must be interpreted with caution, however, given that it occurred in a model with a significant interaction). This finding was unexpected and may be unique to sharing[1]. In caregiving environments characterized by MDS, children may be faced with more frequent situations in which they must practice sharing resources with others; for example, if depressive symptoms interfere with

mothers' engagement with her children, including her tendency to intervene in sibling conflict over resources (e.g., a toy), children may have more experiences negotiating these situations for themselves, resulting in more rapid maturation of autonomous and spontaneous sharing. Given that our sample was economically stressed, it is also possible that MDS contribute to families' economic insecurity in ways that require greater sharing among family members. In such contexts, sharing may be one example of children developing "hidden strengths in harsh environments," in which childhood exposure to stress can sometimes result in enhanced abilities in domains that help children solve problems in high-stress environments (Ellis et al., 2017). Importantly, MDS are a significant problem (particularly in high-risk samples) that affects children's socioemotional development in unpredictable ways and deserves appropriate support and intervention (e.g., Luoma et al., 2001). Yet it is important to examine children's adaptation to such problems in terms of potential strengths as well as risks.

For later emerging and more complex forms of prosocial behavior, such as comforting, such adaptation to stressful caregiving environments may hinge upon additional inputs. In the present study, we found that attachment security moderated the effect of MDS on comforting specifically. For children with high security, greater initial MDS predicted *greater* comforting behavior three months later, but no such links emerged for children with moderate or low attachment security. This finding is somewhat similar to findings from Radke-Yarrow, Zahn-Waxler, Richardson, et al. (1994) that the highest levels of comforting in response to mothers' distress were observed among preschoolers characterized by higher MDS, secure attachment, and emotion regulation problems.

To understand the positive association between MDS and comforting among more secure children, we return to the idea that children actively adapt their mental representations and behavioral strategies to their specific caregiving environment (Bowlby, 1969/1982; Main, 1990). Given that individuals with depressive symptoms tend to display both negative affect and functional impairment with instrumental tasks of daily life (American Psychiatric Association [APA], 2013; Murray & Lopez, 1996), children's adaptations to MDS likely involve increased opportunities to respond to their mothers' emotional needs. It is possible that secure children living with MDS adapt

---

[1]We also note a marginally significant main effect of MDS predicting helping behavior. Given that it also occurred in a model with a marginally significant interaction, we will not advance an interpretation here, but note that many of the same processes we propose for sharing (i.e., more frequent opportunities to practice at home due to MDS) may be at work with helping as well.

to their caregiving environment by learning to cope with parental negative affect and to sustain a relationship with their caregiver by comforting the parent when distressed so that the parent in turn can provide more effective caregiving. The capacity of these children to comfort may stem from the same set of experiences and representations that underlies their security.

Relevant to the interpretation of these findings is a process known in the family therapy literature as *parentification*, whereby children take on what is typically a parent's role (a form of role-reversal; e.g., Chase, 1999; Peris et al., 2008); parent depressive symptoms are one factor that can contribute to parentification (Aldridge, 2006; Champion et al., 2009). Qualitative interview data on this topic show that school-aged children of depressed parents often discussed their attempts to comfort the parent in times of distress (Van Parys & Rober, 2013). Another study found that children's comforting behavior was associated with mothers' dependency on their children for emotional support (Rehberg & Richman, 1989). Children coping with MDS may learn to help maintain the relationship or get their need for connection met in part by comforting or helping the mother, and secure children in particular may have the social-emotional capacities and cognitive scripts to do so more effectively (e.g., secure base script; Waters & Waters, 2006); in contrast, children with low security may become dysregulated when faced with their mothers' needs (Gross et al., 2017). With repeated practice, these patterns within the family may generalize to children's comforting others in distress.

With respect to helping, there was no effect of MDS on helping behavior for children with low to moderate security. For children with high security, however, MDS predicted *greater* helping behavior. Children living with relatively more MDS may face increased bids for help with instrumental tasks (as a result of the functional impairment associated with depressive symptoms; APA, 2013). More secure children may possess the social-emotional competence and motivation to provide this needed instrumental care and may generalize this skill to other contexts to meet other individuals' instrumental needs. Because the interaction between MDS and security predicting helping was only marginally significant, however, results should be viewed as preliminary.

The observation that attachment security plays a role most compellingly in comforting, somewhat in helping, and not in sharing, may reflect the fact that the secure base script most centrally involves caregivers' resolution of distress (i.e., comforting), and to a lesser degree, providing help when needed (Powell et al., 2013; Waters & Waters, 2006). In addition, because comforting draws upon more complex social-emotional

capacities (such as emotion understanding and self-regulation) and emerges later in development (see Dunfield, 2014), its expression may be supported to a greater extent by high-quality attachment experiences.

Limitations & Future Directions

In this section, we contextualize the results in light of the limitations of the present study and offer possible avenues for future work.

Though we view our focus on low-SES, majority African American families as a strength given the under-representation of this population in psychological research, this focus also limits the generalizability of the findings. It is possible that families that are middle class, non-African American, and/or from cultures outside the United States would demonstrate different patterns (see, e.g., Henrich et al., 2010); this consideration raises interesting questions about potential moderating effects of culture and context that could be addressed in future work. For example, theory and research with Mexican American youth and parents suggest that the value of familism plays an important role in children's prosocial development (see Knight & Carlo, 2012); thus, it is possible that maternal influences such as MDS and attachment would have stronger effects on prosocial behaviors such as helping and sharing among youth raised in cultures that place greater value on familism.

It is also important to note that the intersection of low SES, the context of systemic racism in the U.S., and experiences of discrimination confers multiple stressors on parents and children that could influence both MDS and child social development via different pathways. For example, research shows that poverty contributes to adult depressive symptoms (e.g., Ross, 2000), and that family poverty and MDS have unique and combined effects on child social outcomes (e.g., Kiernan & Huerta, 2008). Future work on similar or more socio-economically diverse samples could unpack influences of specific stressors on the development of child PSB.

In addition, the present sample included only mothers, though evidence shows that child social-emotional development is also meaningfully shaped by fathers' depressive symptoms (e.g., Fletcher et al., 2011) and by father-child attachment (for evidence linking father-child relationship quality to PSB, see Ferreira et al., 2016). Future studies would benefit from examining the unique and interactive contributions of other caregivers in addition to mothers. Moreover, our study was conducted in the context of an intervention which may have had unforeseen effects on the links presented here. Although we did not have an adequate sample size to explore our models in

a multigroup framework, and instead present results for the full sample to preserve power, we emphasize the importance of replicating these findings in non-intervention samples.

Although the present study has multiple methodological strengths, including multiple structured observations of each type of PSB, it is important to note that children's PSB was observed only in response to an unfamiliar adult in a lab setting. Future work would benefit from observing children's PSB in response to their mother and/or to peers in naturalistic settings such as at home or school; research in which PSB toward both mothers and others is examined within the same children could prove particularly useful. Inclusion of items measuring potentially relevant child characteristics (e.g., shyness or inhibition if measuring responses to a stranger; sociability if measuring responses to a peer) will also help explain some of the variability in children's prosocial responses, illuminating subtle influences that may otherwise be lost. Further, examining *mechanisms* of children's prosocial behavior may shed light on the diverse motivations of children to behave prosocially (Davidov et al., 2016), and whether these vary as a function of MDS and attachment security. In addition, the methods relied on maternal report of depressive symptoms during a single developmental period (preschool); future work should examine MDS across developmental periods to examine the potential effects of chronicity and timing of MDS and should integrate clinical interviews less subject to potential reporter bias.

In addition, the present study focused on child behavior in preschool, an important period in prosocial development because of the contribution of prosociality and other dimensions of social competence to school readiness (e.g., Denham et al., 2010; Eisenberg et al., 2010). It is possible, however, that different patterns emerge at other ages. In adolescence, for example, peers play an increasingly important role in shaping children's social behavior, including PSB (e.g., Laible et al., 2004); thus, social norms and other characteristics of the peer context may become more important than MDS in predicting PSB in adolescence. Notably, however, research suggests that attachment security with parents continues to positively predict PSB in adolescence (e.g., Thompson & Gullone, 2008), although potential interactive effects with MDS have not yet been examined. One possibility is that although young children may be able to adapt to MDS in some ways in the short term, the cumulative stress of MDS may undermine PSB later in development, helping to account for findings linking MDS to lower overall PSB in adolescents (Elgar et al., 2007). Future work with different age groups and using longer term longitudinal designs may illuminate patterns of developmental continuity and discontinuity in the interactive contributions of MDS and attachment to PSB.

Finally, this study was correlational, precluding causal inference. Future work examining effects of interventions to support maternal mental health and/or child attachment could shed light on causal pathways to child prosocial development. For example, interventions designed to ameliorate MDS (e.g., through individual cognitive behavioral therapy) and promote secure child attachment (through evidence-based attachment intervention approaches; e.g., Dozier et al., 2017; Powell et al., 2013) could evaluate potential downstream effects on specific dimensions of children's PSB toward others.

Conclusions

This study is the first to our knowledge to examine the interactive influences of maternal depressive symptoms and child attachment security on specific types of observed prosocial behavior in early childhood. Findings demonstrate that the influence of MDS on important dimensions of children's social-emotional development may depend on the quality of the parent-child relationship and the type of behavior assessed. We suggest that alongside the serious and well-documented developmental risks associated with MDS (e.g., Luoma et al., 2001), children may show prosocial behavioral adaptations ("hidden strengths") that develop to help children cope with mothers' negative affect (see Ellis et al., 2017). Future work should examine the processes by which children of parents with depressive symptoms adapt to their caregiving environments, with attention to how this may differ in more secure vs. less secure dyads. Interventions to prevent the negative outcomes associated with parental depression (see Downey & Coyne, 1990) are essential, and should focus not only on treating depressive symptoms but also on enhancing parents' capacity to provide a secure base for their children (e.g., Cicchetti et al., 1999).

Funding

ORCID

Bonnie E. Brett 🄳 http://orcid.org/0000-0002-0943-2489

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Sage Publications.

Aldridge, J. (2006). The experiences of children living with and caring for parents with mental illness. *Child Abuse Review*, 15(2), 79–88. https://doi.org/10.1002/(ISSN)1099-0852

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).

Asher, S. R., & McDonald, K. L. (2009). The behavioral basis of acceptance, rejection, and perceived popularity. In K. H. Rubin, W. M. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 232–248). Guilford.

Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., & Kroonenberg, P. M. (2004). Differences in attachment security between African-American and white children: Ethnicity or socio-economic status? *Infant Behavior and Development*, 27(3), 417–433. https://doi.org/10.1016/j.infbeh.2004.02.002

Beekman, A. T., Deeg, D. J., Van Limbeek, J., Braam, A. W., De Vries, M. Z., & Van Tilburg, W. (1997). Criterion validity of the Center for Epidemiologic Studies Depression scale (CES-D): Results from a community-based sample of older subjects in The Netherlands. *Psychological Medicine*, 1(1), 231–235. https://doi.org/10.1017/S0033291796003510

Beier, J. S., Gross, J. T., Brett, B. E., Stern, J. A., Martin, D. R., & Cassidy, J. (2019). Helping, sharing, and comforting in young children: Links to individual differences in attachment. *Child Development*, 90(2), e273–e289. https://doi.org/10.1111/cdev.2019.90.issue-2

Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1, attachment.* New York: Basic Books.

Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1. attachment.* New York: Basic Books.

Bronfenbrenner, U. (Ed.). (2005). *Making human beings human: Bioecological perspectives on human development.* Sage Publications.

Brownell, C. A., Svetlova, M., Anderson, R., Nichols, S. R., & Drummond, J. (2013). Socialization of early prosocial behavior: Parents' talk about emotions is associated with sharing and helping in toddlers. *Infancy*, 18(1), 91–119. https://doi.org/10.1111/infa.2012.18.issue-1

Brumariu, L. E. (2015). Parent-child attachment and emotion regulation. *New Directions for Child and Adolescent Development*, 2015(148), 31–45. https://doi.org/10.1002/cad.20098

Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. *Monographs of the Society for Research in Child Development*, 59(2–3), 228–249. https://doi.org/10.1111/j.1540-5834.1994.tb01287.x

Cassidy, J., & Asher, S. R. (1992). Loneliness and peer relations in young children. *Child Development*, 63(2), 350–365. https://doi.org/10.2307/1131484

Cassidy, J., Brett, B. E., Gross, J. T., Stern, J. A., Martin, D. R., Mohr, J. J., & Woodhouse, S. S. (2017). Circle of Security–Parenting: A randomized controlled trial in Head Start. *Development and Psychopathology*, 29(2), 651–673. https://doi.org/10.1017/S0954579417000244

Cassidy, J., & Marvin, R. S., & The MacArthur Attachment Working Group. (1992). *Attachment organization in preschool children: Coding guidelines* (4th ed.). Unpublished manuscript. University of Virginia.

Champion, J. E., Jaser, S. S., Reeslund, K. L., Simmons, L., Potts, J. E., Shears, A. R., & Compas, B. E. (2009). Caretaking behaviors by adolescent children of mothers with and without a history of depression. *Journal of Family Psychology*, 23(2), 156–166. https://doi.org/10.1037/a0014978

Chase, N. (1999). An overview of theory, research, and societal issues. In N. Chase (Ed.), *Burdened children* (pp. 3–33). Guilford.

Chung, E. K., McCollum, K. F., Elo, I. T., Lee, H. J., & Culhane, J. F. (2004). Maternal depressive symptoms and infant health practices among low-income women. *Pediatrics*, 113(6), e523–e529. https://doi.org/10.1542/peds.113.6.e523

Cicchetti, D., Toth, S. L., & Rogosch, F. A. (1999). The efficacy of toddler-parent psychotherapy to increase attachment security in offspring of depressed mothers. *Attachment & Human Development*, 1(1), 34–66. https://doi.org/10.1080/14616739900134021

Clark, C. H., Mahoney, J. S., Clark, D. J., & Eriksen, L. R. (2002). Screening for depression in a hepatitis C population: The reliability and validity of the Center for Epidemiologic Studies Depression Scale (CES-D). *Journal of Advanced Nursing*, 40(3), 361–369.

Cooke, J. E., Stuart-Parrigon, K. L., Movahed-Abtahi, M., Koehn, A. J., & Kerns, K. A. (2016). Children's emotion understanding and mother–child attachment: A meta-analysis. *Emotion*, 16(8), 1102–1106. https://doi.org/10.1037/emo0000221

Cyr, M., Pasalich, D. S., McMahon, R. J., & Spieker, S. J. (2014). The longitudinal link between parenting and child aggression: The moderating effect of attachment security. *Child Psychiatry & Human Development*, 45(5), 555–564. https://doi.org/10.1007/s10578-013-0424-4

Davidov, M., Vaish, A., Knafo-Noam, A., & Hastings, P. D. (2016). The motivational foundations of prosocial behavior from a developmental perspective—evolutionary roots and key psychological mechanisms: Introduction to the special section. *Child Development*, 87(6), 1655–1667. https://doi.org/10.1111/cdev.12639

Decety, J., Bartal, I. B.-A., Uzefovsky, F., & Knafo-Noam, A. (2015). Empathy as a driver of prosocial behaviour: Highly conserved neurobehavioural mechanisms across species. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 371(1686), 20150077. https://doi.org/10.1098/rstb.2015.0077

Denham, S. A., Brown, C., & Domitrovich, C. E. (2010). "Plays nice with others": Social–emotional learning and academic success. *Early Education and Development*, 21(5), 652–680. https://doi.org/10.1080/10409289.2010.497450

Downey, G., & Coyne, J. C. (1990). Children of depressed parents: An integrative review. *Psychological Bulletin*, 108(1), 50–76. https://doi.org/10.1037/0033-2909.108.1.50

Dozier, M., Bernard, K., & Roben, C. K. (2017). Attachment and biobehavioral catch-up. In H. Steele & M. Steele (Eds.), *The handbook of attachment-based interventions* (pp. 27–49). Guilford.

Dunfield, K. A. (2014). A construct divided: Prosocial behavior as helping, sharing, and comforting subtypes. *Frontiers in Psychology*, 5, 958. https://doi.org/10.3389/fpsyg.2014.00958

Dunfield, K. A., & Kuhlmeier, V. A. (2013). Classifying prosocial behavior: Children's responses to instrumental need, emotional distress, and material desire. *Child*

Development, *84*(5), 1766–1776. https://doi.org/10.1111/cdev.2013.84.issue-5

Edwards, A., Eisenberg, N., Spinrad, T. L., Reiser, M., Eggum-Wilkens, N. D., & Liew, J. (2014). Predicting sympathy and prosocial behavior from young children's dispositional sadness. *Social Development*, *24*(1), 76–94. https://doi.org/10.1111/sode.12084

Eisenberg, N., Spinrad, T. L., & Sadovsky, A. (2006). Empathy-related responding in children. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 517–549). Lawrence Erlbaum Associates Publishers.

Eisenberg, N., Spinrad, T. L., & Knafo-Noam, A. (2015). Prosocial development. In M. E. Lamb & R. M. Lerner (Eds.), *Handbook of child psychology and developmental science: Socioemotional processes* (7th ed., pp. 610–656). Wiley.

Eisenberg, N. (2017). Empathy-related responding and its relations to positive development. In N. Roughley & T. Schramme (Eds.), *Forms of fellow feeling: Empathy, sympathy, concern and moral agency* (pp. 165–183). Cambridge University Press.

Eisenberg, N., Valiente, C., & Eggum, N. D. (2010). Self-regulation and school readiness. *Early Education & Development*, *21*(5), 681–698. https://doi.org/10.1080/10409289.2010.497451

Elgar, F. J., Mills, R. S. L., McGrath, P. J., Waschbusch, D. A., & Brownridge, D. A. (2007). Maternal and paternal depressive symptoms and child maladjustment: The mediating role of parental behavior. *Journal of Abnormal Child Psychology*, *35*(6), 943–955. https://doi.org/10.1007/s10802-007-9145-0

Ellis, B. J., Bianchi, J., Griskevicius, V., & Frankenhuis, W. E. (2017). Beyond risk and protective factors: An adaptation-based approach to resilience. *Perspectives on Psychological Science*, *12*(4), 561–587. https://doi.org/10.1177/1745691617693054

Ferreira, T., Cadima, J., Matias, M., Vieira, J. M., Leal, T., & Matos, P. M. (2016). Preschool children's prosocial behavior: The role of mother–child, father–child and teacher–child relationships. *Journal of Child and Family Studies*, *25*(6), 1829–1839. https://doi.org/10.1007/s10826-016-0369-x

Fletcher, R. J., Feeman, E., Garfield, C., & Vimpani, G. (2011). The effects of early paternal depression on children's development. *Medical Journal of Australia*, *195*(11), 685–689. https://doi.org/10.5694/mja2.2011.195.issue-11-12

Frankel, K. A., Lindahl, K., & Harmon, R. J. (1992). Preschoolers' response to maternal sadness: Relationships with maternal depression and emotional availability. *Infant Mental Health Journal*, *13*(2), 132–146. https://doi.org/10.1002/(ISSN)1097-0355

Goelman, H., Zdaniuk, B., Boyce, W. T., Armstrong, J. M., & Essex, M. J. (2014). Maternal mental health, child care quality, and children's behavior. *Journal of Applied Developmental Psychology*, *35*(4), 347–356. https://doi.org/10.1016/j.appdev.2014.05.003

Gross, J. T., Stern, J. A., Brett, B. E., & Cassidy, J. (2017). The multifaceted nature of prosocial behavior in children: Links with attachment theory and research. *Social Development*, *26*(4), 661–678. https://doi.org/10.1111/sode.2017.26.issue-4

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. *Nature*, *466*(7302), 29. https://doi.org/10.1038/466029a

Houston, J., & Grych, J. (2016). Maternal attachment buffers the association between exposure to violence and youth attitudes about aggression. *Journal of Clinical Child & Adolescent Psychology*, *45*(5), 605–613. https://doi.org/10.1080/15374416.2014.987380

Kiernan, K. E., & Huerta, M. C. (2008). Economic deprivation, maternal depression, parenting and children's cognitive and emotional development in early childhood. *The British Journal of Sociology*, *59*(4), 783–806. https://doi.org/10.1111/j.1468-4446.2008.00219.x

Knight, G. P., & Carlo, G. (2012). Prosocial development among Mexican American youth. *Child Development Perspectives*, *6*(3), 258–263. https://doi.org/10.1111/cdep.2012.6.issue-3

Kobak, R., Cassidy, J., Lyons-Ruth, K., & Ziv, Y. (2006). Attachment, stress, and psychopathology: A developmental pathways model. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Theory and method* (pp. 333–369). Wiley.

Kochanska, G., Aksan, N., Knaack, A., & Rhines, H. M. (2004). Maternal parenting and children's conscience: Early security as moderator. *Child Development*, *75*(4), 1229–1242. https://doi.org/10.1111/cdev.2004.75.issue-4

Ladd, G. W., Birch, S. H., & Buhs, E. S. (1999). Children's social and scholastic lives in kindergarten: Related spheres of influence? *Child Development*, *70*(6), 1373–1400. https://doi.org/10.1111/cdev.1999.70.issue-6

Laible, D. J., Carlo, G., & Roesch, S. C. (2004). Pathways to self-esteem in late adolescence: The role of parent and peer attachment, empathy, and social behaviours. *Journal of Adolescence*, *27*(6), 703–716. https://doi.org/10.1016/j.adolescence.2004.05.005

Lovejoy, M. C., Graczyk, P. A., O'Hare, E., & Neuman, G. (2000). Maternal depression and parenting behavior: A meta-analytic review. *Clinical Psychology Review*, *20*(5), 561–592.

Luoma, I., Tamminen, T., Kaukonen, P., Laippala, P., Puura, K., Salmelin, R., & Almqvist, F. (2001). Longitudinal study of maternal depressive symptoms and child well-being. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*(12), 1367–1374. https://doi.org/10.1097/00004583-200112000-00006

Main, M. (1990). Cross-cultural studies of attachment organization: Recent studies, changing methodologies, and the concept of conditional strategies. *Human Development*, *33*(1), 48–61. https://doi.org/10.1159/000276502

Milan, S., Snow, S., & Belay, S. (2009). Depressive symptoms in mothers and children: Preschool attachment as a moderator of risk. *Developmental Psychology*, *45*(4), 1019–1033. https://doi.org/10.1037/a0016164

Mueller, R. O., & Hancock, G. R. (2010). Structural equation modeling. In G. R. Hancock & R. O. Mueller (Eds.), *The reviewer's guide to quantitative methods in the social sciences* (pp. 371–383). Routledge.

Murray, C. J. L., & Lopez, A. D. (1996). *The global burden of disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020 (vol 1. World Health Organization)*. Harvard School of Public Health.

Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus user's guide* (6th ed). Muthén & Muthén.

Nantel-Vivier, A., Pihl, R. O., Côté, S., & Tremblay, R. E. (2014). Developmental association of prosocial behaviour with aggression, anxiety, and depression from infancy to preadolescence. *Journal of Child Psychology and Psychiatry*, *55*(10), 1135–1144. https://doi.org/10.1111/jcpp.12235

Paulus, M. (2018). The multidimensional nature of early prosocial behavior: A motivational perspective. *Current Opinion in Psychology*, *20*, 111–116. https://doi.org/10.1016/j.copsyc.2017.09.003

Paulus, M., Becker, E., Scheub, A., & König, L. (2016). Preschool children's attachment security is associated with their sharing with others. *Attachment & Human Development*, *18*(1), 1–15. https://doi.org/10.1080/14616734.2015.1100208

Paulus, M., Kühn-Popp, N., Licata, M., Sodian, B., & Meinhardt, J. (2013). Neural correlates of prosocial behavior in infancy: Different neurophysiological mechanisms support the emergence of helping and comforting. *NeuroImage*, *66*, 522–530. https://doi.org/10.1016/j.neuroimage.2012.10.041

Peris, T. S., Goeke-Morey, M. C., Cummings, E. M., & Emery, R. E. (2008). Marital conflict and support seeking by parents in adolescence: Empirical support for the parentification construct. *Journal of Family Psychology*, *22*(4), 633–642. https://doi.org/10.1037/a0012792

Pettygrove, D. M., Hammond, S. I., Karahuta, E. L., Waugh, W. E., & Brownell, C. A. (2013). From cleaning up to helping out: Parental socialization and children's early prosocial behavior. *Infant Behavior & Development*, *36*(4), 843–846. https://doi.org/10.1016/j.infbeh.2013.09.005

Powell, B., Cooper, G., Hoffman, K., & Marvin, R. S. (2013). *The circle of security intervention: Enhancing attachment in early parent-child relationships*. Guilford.

Radke-Yarrow, M., Zahn-Waxler, C., Barrett, D., Darby, J., King, R., Pickett, M., & Smith, J. (1976). Dimensions and correlates of prosocial behavior in young children. *Child Development*, *47*(1), 118–125. https://doi.org/10.2307/1128290

Radke-Yarrow, M., Zahn-Waxler, C., Richardson, D. T., Susman, A., & Martinez, P. (1994). Caring behavior in children of clinically depressed and well mothers. *Child Development*, *65*(5), 1405–1414.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*(3), 385–401. https://doi.org/10.1177/014662167700100306

Radloff, L. S. (1991). The use of the Center for Epidemiologic Studies Depression Scale in adolescents and young adults. *Journal of Youth and Adolescence*, *20*(2), 149–166. https://doi.org/10.1007/BF01537606

Rehberg, H. R., & Richman, C. L. (1989). Prosocial behaviour in preschool children: A look at the interaction of race, gender, and family composition. *International Journal of Behavioral Development*, *12*(3), 385–401. https://doi.org/10.1177/016502548901200307

Romano, E., Tremblay, R. E., Boulerice, B., & Swisher, R. (2005). Multilevel correlates of childhood physical aggression and prosocial behavior. *Journal of Abnormal Child Psychology*, *33*(5), 565–578. https://doi.org/10.1007/s10802-005-6738-3

Ross, C. E. (2000). Neighborhood disadvantage and adult depression. *Journal of Health and Social Behavior*, *41*(2), 177–187. https://doi.org/10.2307/2676304

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*(2), 147–177.

Shaver, P., Mikulincer, M., Gross, J., Stern, J., & Cassidy, J. (2016). A lifespan perspective on attachment and care for others: Empathy, altruism, and prosocial behavior. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research and clinical applications* (3rd ed., pp. 878–916). Guilford.

Solomon, J., & George, C. (2016). The measurement of attachment security and related constructs. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (3rd ed., pp. 366–396). Guilford.

Spinrad, T. L., & Gal, D. E. (2018). Fostering prosocial behavior and empathy in young children. *Current Opinion in Psychology*, *20*, 40–44. https://doi.org/10.1016/j.copsyc.2017.08.004

Steinbeis, N. (2018). Neurocognitive mechanisms of prosociality in childhood. *Current Opinion in Psychology*, *20*, 30–34. https://doi.org/10.1016/j.copsyc.2017.08.012

Stern, J. A., & Cassidy, J. (2018). Empathy from infancy to adolescence: An attachment perspective on the development of individual differences. *Developmental Review*, *47*, 1–22. https://doi.org/10.1016/j.dr.2017.09.002

Thompson, K. L., & Gullone, E. (2008). Prosocial and antisocial behaviors in adolescents: An investigation into associations with attachment and empathy. *Anthrozoös*, *21*(2), 123–137. https://doi.org/10.2752/175303708X305774

Van Parys, H., & Rober, P. (2013). Trying to comfort the parent: A qualitative study of children dealing with parental depression. *Journal of Marital and Family Therapy*, *39*(3), 330–345. https://doi.org/10.1111/j.1752-0606.2012.00304.x

Warneken, F., & Tomasello, M. (2006). Altruistic helping in human infants and young chimpanzees. *Science*, *311*(5765), 1301–1303. https://doi.org/10.1126/science.1121448

Waters, H. S., & Waters, E. (2006). The attachment working models concept: Among other things, we build script-like representations of secure base experiences. *Attachment & Human Development*, *8*(3), 185–197. https://doi.org/10.1080/14616730600856016