Published in final edited form as:

Monogr Soc Res Child Dev. 2017 September ; 82(3): 53–71. doi:10.1111/mono.12310.

Chapter IV. Developmental Trajectories of Children's Aggressive Behaviors After the Birth of a Sibling

Brenda L. Volling, Richard Gonzalez, Tianyi Yu, and Wonjung Oh

Dunn & Kendrick (1982) reported that some children were quite aggressive toward mothers and their infant siblings shortly after the birth. These early behaviors 3 weeks after the birth predicted the quality of sibling relations at 14 months after the birth, which, in turn, continued to predict early sibling relationship quality when the younger sibling was 6 years old (Stillwell & Dunn, 1985). Stewart (1990) also found that 36.5% of the 41 children in his study were involved in physical confrontations with the infant at 1 month, whereas 47.5% were aggressive with mothers and 40% were aggressive with their fathers at 1 month after the birth. Although the number of children in physical confrontations with family members decreased substantially by 4 months, the number increased again by 8 months after the birth, with most physical confrontations focused on the sibling at 12 months. Thus, understanding early patterns of aggression after the birth of a sibling takes on added significance given the long-term continuity of aggression and sibling relationship quality from the earliest months after the birth and from early childhood (Hay et al., 2014; Song & Volling, 2015).

Development of Aggression in Early Childhood

Numerous studies have examined the development of aggression in early childhood, finding that aggression and other disruptive behaviors such as noncompliance and defiance are quite common in toddlerhood (i.e., terrible twos) and the preschool years (Campbell, 2002). In general, physical aggression increases from 2 to 3 years and begins to decline around 4 years of age (Alink et al., 2006; NICHD Early Child Care Research Network, 2004; Tremblay et al., 1999), a time during which many children experience the transition to siblinghood (Baydar et al., 1997). When aggressive behavior does not decline from toddlerhood into elementary school, children are considered at risk for numerous social-emotional problems and maladjustment (Campbell, 2002). Despite the decline in children's aggression over early childhood, there are notable individual differences in young children's aggression that are fairly stable over the preschool period (e.g., Alink et al., 2006). Several investigators have now examined individual differences in longitudinal trajectory patterns across toddlerhood, preschool and into elementary school in an effort to identify those children most at risk for developing persistent patterns of aggressive behavior.

Individual Differences in Young Children's Aggression

There are now numerous studies using mixture modeling to examine group-based trajectories of aggressive behavioral patterns. We focus here on those studies that have examined the early toddler and preschool years as this is the period that coincides with the transition to siblinghood and thus, our findings need to be understood within this developmental framework. In a sample of 572 children followed longitudinally from 5 to 42

months, Tremblay and his colleagues (2004) identified three physical aggression trajectories across the 17, 30, and 42 month time points. The first was a group who exhibited little or no physical aggression over the course of time and accounted for 28% of the sample. The largest group of children (58%) followed a pattern in which children started relatively low but increased modestly in their physical aggression from 17 to 42 months. The final group consisting of 14% of children started out higher on aggression than the other two groups and continued to increase in their aggression from 30 to 42 months.

Other researchers examining trajectories of externalizing behavior problems, which includes aggression, during the toddler and preschool years, reveal similar longitudinal trajectory patterns; generally finding three or four groups of children who often differ with respect to their starting points (intercepts) and rates of change (i.e. linear slope). These groups often consist of a relatively large group of children with low externalizing problems over time, a smaller group of children with generally high and persistent externalizing problems, and groups who start at different points and show declines starting around 2 years of age (e.g., Hill, Degnan, Calkins, & Keane, 2006; NICHD Early Child Care Research Network, 2004). Tremblay et al (2004) documented that the largest risk factor for distinguishing the relatively small number of children in their high aggression trajectory group was the presence of young siblings in the family. Having a sibling as the target for physical aggression increased the odds of membership in the high aggression group by more than a factor of 4.

Based on these earlier findings, we hypothesized there would also be variability (i.e., individual differences) in children's trajectories of aggressive behavior after the birth of a sibling and that we could identify distinct groups of children. We anticipated a large normative group of children with low aggression across the course of the year following the birth (i.e., low-stable). We also hypothesized that there may be a smaller, yet high-risk, group of children who would be persistently higher in their aggression over time and who may very well increase in aggression under the stress of the transition (e.g., high-stable or high-increasing). In her study of hard to manage preschoolers, Campbell (2002) noted that these children reacted strongly to the birth of a younger sibling. As noted earlier, we also tested for an adjustment and adaption response and a maladaptive response (i.e., sudden persistent change) in line with theories of family risk and resilience, and the emphasis on the transition to siblinghood as a psychosocial crisis for firstborns based on psychodynamic theorizing (Adler, 1928; Levy, 1934). Specifically, we tested whether increases in aggression from prenatal to 1 month after the birth increased and if so, how long-lived this increase was. Dunn & Kendrick (1982) claimed that emotional upset and disruptive behavior had diminished by the end of the first month after the birth and most children appeared to have adapted shortly thereafter. Thus, if aggression did increase, we expected to see an adjustment and adaptation response, in which increases in aggression from prenatal to 1 month would have returned to pre-birth levels by 4 months after the birth, indicating that children had adapted to changes in their families. The adjustment and adaptation response would provide evidence of potential disturbance in response to the stresses of change brought about by the birth, but this effect would subside by 4 months once the family had adapted to the arrival of the new family member and adjusted to the change in roles and expectations.

In contrast to these stable and adaptive patterns, we also tested for several other trajectory patterns that might manifest and reflect increases in problem behavior over time. One maladaptive response reflecting a sudden increase from prenatal to 1 month that persisted and remained high throughout the year could be tested with a quadratic polynomial or curvilinear pattern whereas a second pattern would show a gradual linear increase in aggression over time. Because no prior study has examined individual differences in growth trajectories of aggression across the transition to siblinghood, our modeling of trajectory patterns is based both on theories of family stress and resilience and prior research examining linear patterns of change in aggression over early childhood.

Risk and Protective Factors in the Prediction of Early Aggression

Potential risk factors that maintain stable aggressive tendencies in early childhood are generally grouped into child, parent, and family characteristics, which are also consistent with the developmental ecological systems perspective (Volling, 2005). With respect to child characteristics, temperamental difficulty or negative emotionality has been examined frequently and seems to be a developmental precursor to the emergence of externalizing behavior problems, although the exact process by which this occurs is not entirely clear (Bates, Maslin, & Frankel, 1985; Shaw, Keenan, & Vondra, 1994; Morris, Keane, Calkins, Shanahan, & O'Brien, 2014; Gartstein, Putnam, & Rothbart, 2012). High negative emotionality is posited as a central feature of psychopathology because difficult and fussy infants, and young children, often have difficulty regulating their anger and may be prone to the use of aggression in their social interactions (Hay et al., 2014).

In the parenting domain, hostile, power-assertive, and rejecting maternal behavior, or the lack of maternal acceptance and warmth, have been related consistently with the development of externalizing behaviors in young children (Dishion & Patterson, 2006; Miner & Clarke-Stewart, 2008; Choe, Olson, & Sameroff, 2013; Towe-Goodman & Teti, 2008), although the relations between maternal and child behaviors most likely reflect a transactional process of increasing coercion and punishment over time (e.g. parental reactivity hypothesis) rather than a simple unidirectional relation (Kochanska & Kim, 2012; Combs-Ronto, Olson, Lunkenheimer, & Sameroff, 2009; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). Further, children with insecure avoidant and disorganized attachments to their mothers are more likely to have externalizing behavioral difficulties (Fearon et al., 2010; Fearon & Belsky, 2011), whereas positive father involvement and children with secure father-child attachments are less likely to have externalizing problem behaviors in early childhood (Boldt, Kochanska, Yoon, & Koenig Nordling, 2014; DeKlyen, Biernbaum, Speltz, & Greenberg, 1998; DeKlyen, Speltz, & Greenberg, 1998; Herbert, Harvey, Lugo-Candelas, & Breaux, 2013).

Maternal depressive symptoms have also been linked to the development of children's disruptive behavior, whether this link is direct or mediated by its effect on ineffective parenting practices and inconsistent discipline (Tremblay et al., 2004; Owens & Shaw, 2003; Dix & Yan, 2014). Parents, both mothers and fathers, reporting lower parental self-efficacy also reported their children had more behavior problems (Gross & Tucker, 1994; Hill & Bush, 2001), although it is not clear if this association is a reflection of parent's feelings of

ineffectiveness in the parental role or an actual increase in problematic child behaviors. In an earlier report, we found that mothers' and fathers' parental self-efficacy at 1 month after the infant's birth, specifically their inability to control and discipline their older child when naughty, predicted the older sibling's antagonistic interactions with the younger sibling later in the year following the birth (Oh, Volling, & Gonzalez, 2015). When parents felt ineffective in disciplining the older sibling shortly after birth, their children were engaging in aggressive and antagonistic behavior with their 4-month-old infant siblings.

Interparental or marital conflict has been consistently tied to young children's disruptive behavior (Peterson & Zill, 1986; Lindsey, Caldera, & Tankersley, 2009; Amato & Cheadle, 2008) and externalizing behavior problems (Cummings, Goeke-Morey, & Papp, 2004; E. M. Cummings & Davies, 2011; Davies, Cicchetti, & Martin, 2012; Kaczynski, Lindahl, Malik, & Laurenceau, 2006). Coparenting between mothers and fathers in the form of either supportive or conflictual relations also predicts externalizing and disruptive behaviors in young children (Belsky, Woodworth, & Crnic, 1996; Schoppe-Sullivan et al., 2009). We have also found that home observations of coparenting (low support and undermining) between parents during triadic interaction with the firstborn before the birth predicted increases in externalizing behaviors 1 month after the birth, and that supportive and undermining coparenting interacted so that the greatest increases in externalizing behavior problems occurred when mothers and fathers were high on undermining coparenting and low on supportive coparenting (Kolak & Volling, 2013). Parenting stress (Shaw et al., 2001) and the social support parents receive from family and friends may play a role in the emergence of disruptive behaviors, most likely due to the fact that reliance on others for emotional, financial, and instrumental support can alleviate much of the caregiving stress, reduce role overload and enhance parental mental health (Lee, Anderson, Horowitz, & August, 2009; Guralnick, Hammond, Neville, & Connor, 2008; Hoagwood et al., 2010; DeGarmo, Patras, & Eap, 2008; Leahy-Warren, McCarthy, & Corcoran, 2012).

In the current study, we considered children's temperamental characteristics (e.g., negative emotionality), parent characteristics (e.g., depression, parenting behaviors, feelings of efficacy, attitudes toward spanking), and family and social contextual factors (e.g., marital quality, social support, coparenting, parenting hassles) before the birth as predictors of our aggression trajectories as part of the variable selection algorithms. Variable selection procedures are preferable when the goal is to pinpoint which factors are most strongly related to outcomes and can provide the evidence base needed to target effective interventions. Should a high-risk group of children showing clinically-significant levels of aggression be identified, either before or after the birth of their infant sibling, this approach lets us identify those child, parent, and social-contextual factors most relevant for targeted interventions for these families.

Sibling Relationships and Early Aggression

According to Patterson (1986), coercive sibling interaction in childhood serves as a "training ground" for the development of aggressive behavior (i.e., the sibling training hypothesis). The strongest risk factor in predicting the trajectories of a highly aggressive group of toddler boys was the presence of a sibling in the household (Tremblay et al., 1999). The family is

the first place that many young children encounter conflict and sibling conflict is commonplace in most households with two or more young children. Dunn & Munn (1986) reported that sibling conflict in early childhood occurred approximately 7 times an hour; similar to the 6.3 times per hour reported by Perlman & Ross (1997) with a sample of 2- and 4-year-old siblings. Although ubiquitous, sibling conflict can be both mild (e.g., argumentative) or severe (e.g., violent) and involve both destructive and constructive conflict resolution. Destructive conflict-resolution during sibling conflict, even for very young children, predicted aggressive behavior problems among preschool boys (Garcia et al., 2000). Early sibling conflict and aggression seems to play an influential role in the development of preschool children's emerging emotion regulation and aggression. Further, sibling conflict is strongly associated with the development of children's externalizing and internalizing difficulties (Dirks et al., 2015). Therefore, we examined whether the resulting aggression trajectories would predict sibling relationship quality, specifically more conflict and less positive involvement one year after the birth. We hypothesized that trajectories of aggression should predict the quality of the children's sibling relationship at the end of the year, particularly levels of sibling conflict. Children expressing high levels of aggressive behavior over the course of the year would be engaged in more sibling conflict and less positive sibling relationships at 12 months.

In the current study, we used a group-based trajectory analysis (growth mixture modeling) to ascertain different patterns of children's aggressive behavior across the transition, hypothesizing that children who evinced increased aggression or who had been highly aggressive before the infant's birth and continued to remain high over the course of the year would be engaged in more sibling conflict 1 year after the birth compared to children who were low on aggression or experienced minimal change in aggression over the course of the transition.

Results

Individual Differences in Trajectories of Aggressive Behavior

Having determined in Chapter III that the unconditional Adjustment and Adaptation Response (AAR) model fit the aggression data better than both the unconditional latent linear and unconditional quadratic models, we used growth mixture modeling (GMM) to model the variability in the growth parameters and identify the patterns of aggression trajectories across the five timepoints of the study. We determined that the five-class Adjustment and Adaptation Response model (we will use AAR throughout the Results section for ease of presentation) solution with the fixed effects (i.e., intercept, linear slope, and AAR contrast) and the random effects (i.e., intercept, linear slope) of growth parameters was considered the best fitting model based on fit indices; the five-class model had a lower BIC and AIC, AIC = 5495.30, BIC = 5588.13, than both the four-, AIC = 5497.03, BIC = 5576.11, and six-class models, AIC = 5497.94, BIC = 5604.52, and higher entropy (.705) than the four-class model (.673). Table 4 presents estimates and standard errors for the fixed effects of each class, which provide interpretation of the changes observed within each class, in addition to the random effects. Figure 3 shows the different trajectory patterns for the five classes. In determining class labels, we used a naming convention in which we denoted the

starting value (intercept) first (e.g., high, mid, low) and then the pattern of change most characteristic of this class (e.g. decreasing, AAR).

The largest class was denoted as the *low-increasing* class and represented 40% of the sample ($n = 92$). As can be seen in Table 4 and Figure 3, children in this class showed the lowest levels of aggressive behavior at the prenatal time-point with a gradual linear increase over the first year after the birth of the sibling. A second class of children showed a significant increase in their aggressive behavior from prenatal to 1 month and then a decrease by 4 months (i.e., AAR effect). This *low-AAR* class, comprising 29.6% of the sample ($n = 68$), had low levels of aggressive behavior at the prenatal time point, followed by an increase from prenatal to 1 month, but a decrease from 1 to 4 months, and then remained stable for the rest of the year. A third class was labeled the *mid-stable* class (19.1%; $n = 44$) and showed moderate levels of aggressive behavior at the prenatal time point that remained stable throughout the first year after the birth of the sibling. The fourth, *mid-AAR-decreasing* class, accounted for only 7.8% of the sample ($n = 18$) and started out with mid-to-high levels of aggressive behavior at the prenatal time point, followed by a fairly dramatic increase from prenatal to 1 month in aggression, then a subsequent decrease from 1 to 4 months, with a further decrease in aggressive behavior for the rest of the year. The smallest class, *high-decreasing*, by contrast, accounted for 3.5% of the sample ($n = 8$) and showed the highest level of aggressive behavior at the prenatal timepoint with a significant linear decrease over time. Thus, results are consistent with theoretical patterns indicative of linear increase, stability and no change, as well as adjustment and adaptation as presented in Figure 1 and with none of the curvilinear patterns of change in Figure 2, including sudden, persistent change reflecting a psychosocial crisis model.

Spaghetti plots showing the individual trajectories for each child by class membership can be found in Figure 4. For each plot, the lower line represents the normative mean for the CBCL aggression subscale (1.5-5: Achenbach & Rescorla, 2000), the second line represents the 92.5th percentile, which indicates the borderline clinical range cut-off, and the top line represents the 97th percentile, which denotes the clinical range cut-off. What these figures clearly show is that the five classes fit precisely within these cut-off ranges, and are in line with what we would expect for a community-based low risk sample in which most children were low and fell well below the borderline or clinical cut-offs for aggressive behavior, and only a few children were identified in the clinical cut-off range. For instance, all children within the low-increasing class were well below the normative mean, whereas all the mid-stable children fit within the borderline clinical range. Only the 8 children in the high-decreasing class were near or above the clinical range cut-off. These figures demonstrate that the identified classes represent distinct and meaningful classes of children who fall within the normative, borderline and clinical ranges established for the CBCL. Also, the mid-AAR-decreasing class differs from the low-AAR class, with the low-AAR starting in the low range and reaching the borderline range after the birth, and the mid-AAR starting in the borderline range and hitting the clinical range cut-off. Thus, the GMM analyses identified two classes of children, both having an AAR effect, but one actually experienced clinical levels of problem behaviors in response to the sibling's birth. This group of children is of particular interest because even though small in number there is evidence that they are experiencing behavioral changes severe enough to be clinically significant. Although several of the

resulting classes have few children and could be considered statistical outliers or too few for class enumeration, these children are most deserving of our attention and should not be dismissed for purely statistical reasons.

Predicting Aggressive Trajectories

The combined recursive tree and random forest variable selection procedure identified four candidate predictors of the five classes of the aggression trajectories. These predictors were children's negative emotionality, attachment security to mother, fathers' parental-self efficacy, and observations of undermining coparenting during prenatal home visits. We then tested whether these four variables were statistically significant predictors of the five aggression classes by conducting a multinomial logistic regression with each predictor entered as a continuous, centered, additive predictor using the low-increasing class as the reference class. We computed a second multinomial logistic regression that also included all possible higher order interactions between the five predictors. The full model with all higher order interactions was not significantly better than the reduced model, $LR\ Chisq(df=44) = 51.15, p = .21$, so we report the results of the reduced model with additive main effects.

Table 5 presents the coefficients, the standard errors, the odds ratios, and z-tests for the multinomial regressions using the large, low-increasing class as the reference class. The z-tests show that children's negative emotionality is a significant predictor of differences between each of the four classes and the low-increasing reference group (all z's > 1.96). In all cases, there is a greater probability of being in the low-AAR, mid-stable, mid-AAR-decreasing, and high-decreasing class for children higher in negative emotionality compared to the low-increasing class. Children's attachment security to mother significantly predicted the difference between the high-decreasing class and the low-increasing reference class such that lower attachment security to mother is associated with a higher probability of being in the high-decreasing class relative to the low-increasing reference class. Father's parental efficacy was a significant predictor of the mid-stable and the high-decreasing class, with higher scores (i.e., greater feelings of ineffectiveness in disciplining) predicting a greater probability in both the mid-stable and high-decreasing classes relative to the low-increasing class.

Because of our interest in discerning differences between classes hitting different levels of clinical significance, we also conducted exploratory multinomial logistic regressions using several of the other classes as the reference class. Using the high-decreasing class as the reference class, in which children started near the clinical or above the clinical range on aggression before the birth, we found that children's negative emotionality, attachment security to mother, undermining coparenting during triadic observations, and fathers' parental self-efficacy significantly predicted class membership in the high-decreasing compared to the mid-AAR-decreasing class. Specifically, children in the high decreasing class were more negatively emotional, $b = -5.34, z = -2.463, OR = .005$, had parents engaged in more undermining coparenting, $b = -1.47, z = -2.014, OR = .231$, had fathers with low parental efficacy, $b = -6.44, z = -2.172, OR = 0.002$, and had less secure attachments to their mothers, $b = 21.06, z = 2.06, OR > 1000$, than children in the mid-AAR-decreasing class. Actually, children in the high-decreasing class were higher on negative emotionality

(all z 's less than -1.96) and had less secure attachments to their mothers than any of the four comparison classes (all z 's greater than 1.96). Further, fathers of children in the high-decreasing class felt less effective as a parent than fathers of children in the low-AAR class, $b = -6.34$, $z = -2.178$, $OR = .002$.

We were also interested in the comparisons between the mid-stable and mid-AAR-decreasing classes because these two classes were similar at the prenatal time point, but evinced different patterns of change, with one showing an AAR and the other remaining stable over time. Using the mid-stable class as the reference class, father's parental efficacy predicted the likelihood difference of being in the mid-AAR-decreasing class, $b = -1.85$, $z = -2.110$, $OR = .158$, indicating that fathers who felt more ineffective as a parent were more likely to have children in the mid-stable class. In addition, father's parental efficacy, $b = -1.74$, $z = -2.60$, $OR = .175$, children's negative emotionality, $b = -1.49$, $z = -3.15$, $OR = .225$, and observed undermining coparenting, $b = .294$, $z = 2.05$, $OR = 1.34$, predicted the low-AAR class relative to the mid-stable class, with greater feelings of ineffective fathering, more negatively emotional children, and less undermining coparenting associated with greater probability of membership in the mid-stable class compared to the low-AAR class. Finally, we were interested in the mid-AAR-decreasing and low-AAR classes. Both showed an adjustment and adaptation response, but they differed both with respect to their intercepts (i.e., prenatal scores) and the extent of the response with one showing a modest increase, and the other showing an increase hitting clinical levels. Only the observations of undermining coparenting predicted the difference between class membership, $b = -.432$, $z = -2.22$, $OR = .649$ (using low-AAR as reference), with parents in the low-AAR more likely to use undermining coparenting during home observations than parents in the mid-AAR-decreasing class.

Consequences of Children's Aggression for Sibling Relationships at One Year

To determine whether children's aggression trajectories predicted the quality of the sibling relationship at 12 months after the birth, we conducted a series of regression analyses across the three dimensions of sibling relationship quality (i.e., positive engagement, conflict, and avoidance) using the low-increasing class as a reference group because our predictor, the aggression trajectory classes, was categorical. Results revealed that at 12 months, parents of children in the mid-stable ($est. = .243$, $SE = .108$, $p = .026$) and mid-AAR-decreasing classes ($est. = .382$, $SE = .143$, $p = .008$) reported significantly more sibling conflict at 12 months than the low-increasing class. The mid-stable group was also significantly less likely to be positively engaged with their younger siblings at 12 months ($est. = -.213$, $SE = .104$, $p = .041$) than the low-increasing class.

Discussion of Children's Aggression Trajectories

In this chapter, we examined the overall pattern of children's aggression after the birth of a sibling, as well as subgroups of trajectories that captured individual differences within the overall sample. Additionally, we explored the predictors of these trajectories and tested whether distinct trajectory subtypes were associated with differences in sibling relationship quality when the younger sibling was one year of age.

Results examining the overall pattern of aggressive behavior across the sample indicated that the adjustment and adaptation response, with an initial increase in aggression from prenatal to 1 month and a subsequent decline in aggression from 1 to 4 months, best described children's aggressive behavior after the birth of an infant sibling. Thus, firstborn children, in general, do appear to show an initial increase in aggression after their infant sibling's birth, but this increase is short-lived and children return to pre-birth levels by 4 months. Testing the AAR contrast in our statistical models provides solid evidence for what we are referring to as an adjustment and adaptation response after a normative stressful life event (the birth of an infant sibling) that underscores the resilience of many children, and stands in contrast to a pattern of sudden and persistent change indicative of maladjustment that would have been captured by the quadratic effect. Thus, our results provide far more support for resilience in the face of stress and change for children undergoing the transition to siblinghood than any evidence of psychosocial trauma or a developmental crisis underscored in some of the earliest psychodynamic accounts of children's reactions to the birth of a sibling (Levy, 1937; Winnicott, 1964) in which children supposedly would resort to any means necessary to recapture the lost attention and love of their parents.

Despite evidence of an adjustment and adaptation response to their sibling's birth, heterogeneity in children's aggression trajectories was further evident, and we were able to identify five trajectory patterns that described children in the present sample; several in line with current studies looking at trajectories of aggression and externalizing behavior in the toddler and preschool period. The largest class of children (40%) was low on aggression initially at the pre-birth time point and gradually increased (linear) in their aggression over the year following the sibling's birth. This pattern may reflect a normative developmental trajectory in that children are known to increase over the toddler years in their aggressive behavior before aggression declines around 3 to 4 years of age. Children in the current study were 31 months of age, on average, so increases in aggressive behavior throughout the year following the birth due to normative age changes would not be completely consistent with extant findings.

In contrast, these gradual increases in aggressive behavior over the months after the birth may coincide with normative developmental changes in the infant during the first year after birth. Maturation in infant mobility with advances in exploratory play and social interest in others as the year progresses means greater social contact between older and younger siblings, yet infants are also limited in their social abilities. These sorts of encounters of invading on the older siblings' play space, while grabbing toys and destroying carefully planned fantasy worlds may often be upsetting to older siblings who themselves are still relatively unsophisticated in their own abilities to resolve conflict. Dunn & Munn (1986) provided detailed descriptions of the conflict between young siblings of this age and the frequent number of conflicts in which parents must intervene over the course of a day (approximately 7 per hour). This interpretation of increasing aggression coinciding with developmental changes in the infant is substantiated by our findings showing that the different aggression trajectories predicted the quality of children's relationships with their younger sibling one year after the birth. Children in the mid-stable class exhibited more conflict and were less positively engaged with their infant siblings than children in the low-increasing class. The largest class of children showing low, but linearly increasing

aggression over the year following the birth of their younger siblings, appears to describe most children in this sample. Thus, a modest linear increase in children's aggressive behavior may be expected during the year following the birth of a second child.

Because of our interest in identifying the effects of the transition on children's behavioral adjustment and whether these effects were short- or long-lived, we tested different trajectory patterns indicative of no change and linear change (increases and decreases), as well as more specific patterns we hypothesized to reflect different patterns of adjustment and adaptation, one in which children would exhibit initial behavioral disruption in response to the stress of the transition, but adapt over time to the changing family circumstances and return to pre-birth levels of behavioral functioning, and a second, more indicative of behavioral maladjustment or difficulties with the transition which would reflect sudden increases in problematic behavior in response to the transition that persisted over time (quadratic model) and did not return to pre-birth levels. The quadratic model would also allow testing of other possible developmental trajectories that might coincide with changes in the family and the infant's developmental milestones over time such as the gradual impact and decline model wherein children increased but returned gradually back to pre-birth levels over the year, or the delayed impact model wherein children show little to no change immediately after the birth, but showed significantly greater increases by 8 and 12 months when infant mobility and social intrusions become more frequent (Stewart, 1990). The unconditional latent growth curve model indicated that the model testing the adjustment and adaptation response was a better fit to our data than either the linear or quadratic models suggesting that, on average, there was evidence of initial increases in children's aggression shortly after the birth that subsided by 4 months of age. This model was a better fit to the longitudinal patterns than a maladaptation or developmental crisis model, the delayed impact model, or the gradual impact and decline model. These findings are consistent with Dunn & Kendrick's (1982) work reporting that changes in children's problematic behavior after the sibling's birth were short-lived and most children appeared to adjust to the birth by 8 months of age, although our data suggest that most children have adjusted already by 4 months after the birth.

Regardless of this general pattern, though, there was evidence of heterogeneity in children's aggression trajectories. There was a very small group of children ($N = 8$) who evinced very high levels (clinical and borderline-clinical cut-off range) of aggression even before the birth and actually showed significant declines in their aggression over time. This pattern may reflect the normative developmental decreases in aggression often reported in the literature, but based on our prediction analysis examining the most discriminating prenatal predictors, we offer another possible interpretation focusing on family processes interacting with children's temperament. These 8 children differed from the low-increasing class in that they were higher in negative emotionality, had lower attachment security scores to their mothers, had fathers who felt more ineffective in their abilities to parent and discipline the older sibling, and parents engaged in more undermining coparenting during prenatal home observations. Once the infant was born and mothers were busy with the care of a newborn infant, these insecurely-attached children's aggression actually decreased over time, suggesting the possibility that children's behavioral adjustment may have far more to do with family dynamics and changes in the family, brought about by the birth of the infant,

than the actual infant per se. One possible explanation is that children fare better and engage in less aggressive behavior once their mothers' attention is redirected to another child, and the older child is no longer the recipient of the insensitive or intrusive parenting that gave rise to the insecure attachment to their mothers. It is also possible that these children expressed their aggressive tendencies and emotional distress through other means, perhaps becoming more emotionally reactive once the infant was born. Of these 8 aggressive children, 5 were in the mid-increasing group of emotionally reactive children to be described later, suggesting that decreases in aggressive behavior were accompanied by increases in emotional distress over the year. We do not know if these children may have turned to their fathers during this time for security and comfort and whether a secure father-child attachment may account in some ways for this decrease in aggressive behavior. It should be noted, however, that fathers of these children reported feeling less efficacious in their parenting skills so even if children did turn to their fathers for support, it is not clear that their fathers were able to provide the emotional comfort and security needed to ameliorate their distress.

A similar picture emerged for some of the other trajectory patterns wherein children's negative emotionality and family relationship functioning before the sibling's birth played a large part in predicting class membership. For instance, most children in the three classes that fell within the borderline clinical and clinical cut-offs of the aggression scale, the high-decreasing, mid-stable, and mid-AAR-decreasing classes, were higher on negative emotionality than children in the low-increasing class. Children in the mid-stable class also had fathers who felt less effective in their discipline than those in the low-increasing class, yet had higher attachment security scores with their mothers than children in the riskier, high-decreasing class.

We were particularly interested in comparisons between groups where children were comparable at the prenatal visit, but showed a different pattern of change after the birth, specifically comparisons of the mid-stable group with the mid-AAR-decreasing group, where children had a large increase (some hitting clinical levels) in their aggression after the birth that subsequently declined by 4 months, and comparison of the low-increasing with the low-AAR group, where there was a more modest increase in aggression from prenatal to 1 month that eventually declined by 4 months. Children in the mid-AAR-decreasing group were distinguished from the mid-stable class in that their fathers reported feeling more efficacious in their parenting abilities than those in the mid-stable class. Perhaps the more efficacious fathers of the mid-AAR-decreasing class were able to effectively respond and discipline their children in response to aggressive behavior that allowed children to return to pre-birth levels of functioning during a particularly stressful developmental transition.

Most children in the low-increasing and low-AAR classes were low on negative emotionality, yet children in the low-AAR class did have higher scores on negative emotionality than children in the low-increasing class, suggesting that these children may have been more temperamentally reactive to changes in the family after the sibling's birth. It is interesting that children in the low-AAR families had parents who engaged in more undermining coparenting during prenatal home observations than parents in both the mid-stable and mid-AAR-decreasing classes underscoring that mothers and fathers in these

families had difficulties working together as coparents and this may have played some role in why the low-AAR children had the significant increase in aggressive behaviors that they did. The low-AAR class represented 30% of the sample and was the second largest class after the larger, low-increasing class. Some have argued that the father's involvement during this transition is critical for children's adjustment (Kreppner, Paulsen, & Schuetze, 1982; Stewart, 1990), and the current findings suggest that children may experience little to no disruption after the birth when their fathers are actively involved in the family either because of their active role as a coparent or their feelings of competence as an effective father. No study before ours has examined fathers' feelings of parental efficacy or coparenting in predicting children's adjustment after the birth of a sibling, but our findings are consistent with earlier research underscoring the strong connections between marital quality, father-child relationships, and children's behavioral adjustment (Cummings, Merrilees, & George, 2010; Jouriles & Farris, 1992; Stevenson et al., 2014; Davies, Sturge-Apple, Woitach, & Cummings, 2009; Booth & Amato, 1994; Schacht, Cummings, & Davies, 2009; Goeke-Morey & Cummings, 2007).

Two of the five classes revealed a period of adjustment (i.e., the initial response to a potential stressor) and adaptation (i.e., a period in which the child reorganizes and resumes family life much as before the stressful life event). We believe our research program is the first to explicitly test for an adjustment and adaptation response after a normative life event using latent growth curve and growth mixture modeling. The timing of our assessments was critical in capturing this response, given that children had already returned to pre-birth levels by 4 months after birth. Had our first post-birth assessment not occurred at 1 month so soon after the birth, we would have missed the adjustment and adaptation response for children's aggression and most likely concluded that children's aggression remained stable, when in fact the results clearly suggested a perturbation in the family system that eventually resolved itself. Because our analysis strategy was guided by our desire to identify prenatal predictors that would be useful targets for pre-birth intervention, we were unable to delineate what family processes after the birth may be responsible for these different change patterns. Future reports will be able to provide more fine-grained analyses addressing the family processes and developmental cascades between child, parent, and family context over time.

Overall, the results examining children's aggression after the birth of a second child indicate that for most children, parents can expect a gradual linear increase in the firstborn children's aggression that more than likely coincides with developmental changes in the infant's growing capacity to socially engage others, both negatively and positively. There is also evidence, however, that there are significant individual differences in how children react to the birth of their infant sibling and that family processes occurring before the birth forecast these individual differences in aggression trajectories over the first year. Temperamentally difficult children with insecure attachments to their mothers in families where fathers felt ineffective in disciplining the firstborn, with more undermining coparenting observed during home observations were at greatest risk for being aggressive before and staying aggressive after the birth of their infant sibling, or evincing a period of initial disruption that eventually subsided by 4 months. Most children appeared to be resilient and returned to pre-birth levels by 4 months after the birth. Intervention efforts targeting the mother-child relationship, fathers' effectiveness in managing the older child's behaviors, and the coparenting

relationship before the birth may assist these children and their families with the transition. These results are consistent with prior research finding that preschool children with externalizing or aggressive behavior problems often have difficult temperaments, have insecure attachments to their mothers and fathers, and have parents engaged in more coparenting conflict (Kochanska & Kim, 2012; Fearon et al., 2010; Gartstein et al., 2012; Fearon & Belsky, 2011; Rothbart & Bates, 1998). In sum, these results suggest that children's aggressive behaviors before and after the birth of a sibling may be exacerbated by the stresses and changes in family life surrounding the birth, but many of these changes are short-lived and children are resilient.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This research was supported by grants from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD: R01HD042607, K02HD047423) to Volling. Matthew M. Stevenson was supported by the Developmental Psychology Training Grant (T32HD007109) from NICHD during the writing of this project.

References

- Acebo C, Sadeh A, Seifer R, Tzischinsky O, Hafer A, Carskadon MA. Sleep/wake patterns derived from activity monitoring and maternal report for healthy 1-to 5-year-old children. *Sleep-New York then Westchester*. 2005; 28(12):1568.
- Achenbach, TM., Rescorla, L. Manual for the ASEBA Preschool Forms & Profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth & Families; 2000.
- Adler A. Characteristics of the first, second and third child. *Children*. 1928; 3(5):14.
- Affonso DD, Mayberry LJ, Sheptak S. Multiparity and stressful events. *Journal of Perinatology*. 1988; 8:312–317. [PubMed: 3266238]
- Ainsworth, MDS., Blehar, MC., Waters, E., Wall, S. Patterns of attachment: A psychological study of the strange situation. Hillsdale, NJ: Erlbaum; 1978.
- Akaike H. Factor analysis and AIC. *Psychometrika*. 1987; 52(3):317–332. <http://doi.org/10.1007/BF02294359>.
- Alink LRA, Mesman J, Van Zeijl J, Stolk MN, Juffer F, Koot HM, ... Van IJzendoorn MH. The early childhood aggression curve: Development of physical aggression in 10- to 50-month-old children. *Child Development*. 2006; 77(4):954–966. <http://doi.org/10.1111/j.1467-8624.2006.00912.x>. [PubMed: 16942499]
- Amato PR, Cheadle JE. Parental divorce, marital conflict and children's behavior problems: A comparison of adopted and biological children. *Social Forces*. 2008; 86(3):1139–1161. <http://doi.org/10.1353/sof.0.0025>.
- Anders TF, Keener MA. Developmental course of nighttime sleep-wake patterns in full-term and premature infants during the first year of life: I. Sleep: *Journal of Sleep Research & Sleep Medicine*. 1985; 8(3):173–192.
- Aro H. Stress, development and psychosomatic symptoms in adolescence: A comparison of the sexes. *Psychiatria Fennica*. 1989; 20:101–109.
- Aro H, Paronen O, Aro S. Psychosomatic symptoms among 14- to 16-year old Finnish adolescents. *Social Psychiatry*. 1987; 22(3):171–176. <http://doi.org/10.1007/BF00583852>. [PubMed: 3498225]
- Barkley RA. Assessment of teens with ADHD. *The ADHD Report*. 2003; 11(4):1–7. <http://doi.org/10.1521/adhd.11.4.1.23485>.

- Baruch GK, Barnett RC. Role quality, multiple role involvement, and psychological well-being in midlife women. *Journal of Personality and Social Psychology*. 1986; 51(3):578–585. <http://doi.org/10.1037/0022-3514.51.3.578>.
- Bates JE, Maslin CA, Frankel KA. Attachment security, mother-child interaction, and temperament as predictors of behavior problem ratings at age three years. *Monographs of the Society for Research in Child Development*. 1985; 50(1/2):167–193. <http://doi.org/10.2307/3333832>. [PubMed: 4069127]
- Bates JE, Pettit GS, Dodge KA, Ridge B. Interaction of temperamental resistance to control and restrictive parenting in the development of externalizing behavior. *Developmental Psychology*. 1998; 34(5):982–995. <http://doi.org/10.1037/0012-1649.34.5.982>. [PubMed: 9779744]
- Battaglia M, Touchette É, Garon-Carrier G, Dionne G, Côté SM, Vitaro F, ... Boivin M. Distinct trajectories of separation anxiety in the preschool years: persistence at school entry and early-life associated factors. *Journal of Child Psychology and Psychiatry*. 2016; 57(1):39–46. <http://doi.org/10.1111/jcpp.12424>.
- Baydar N, Hyle P, Brooks-Gunn J. A longitudinal study of the effects of the birth of a sibling during preschool and early grade school years. *Journal of Marriage and Family*. 1997; 59(4):957–965. <http://doi.org/10.2307/353795>.
- Beck AT, Steer RA, Carbin MG. Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review*. 1988; 8(1):77–100. [http://doi.org/10.1016/0272-7358\(88\)90050-5](http://doi.org/10.1016/0272-7358(88)90050-5).
- Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. *Archives of General Psychiatry*. 1961; 4(6):561–571. <http://doi.org/10.1001/archpsyc.1961.01710120031004>. [PubMed: 13688369]
- Beck JE. A Developmental Perspective on Functional Somatic Symptoms. *Journal of Pediatric Psychology*. 2008; 33(5):547–562. <http://doi.org/10.1093/jpepsy/jsm113>. [PubMed: 18056142]
- Bedford, VH., Volling, BL. A Dynamic Ecological Systems Perspective on Emotion Regulation Development within the Sibling Relationship Context. In: Lang, FR., Fingerman, KL., editors. *Growing together: Personal relationships across the lifespan*. New York, NY, US: Cambridge University Press; 2004. p. 76-102.
- Bélanger M-È, Bernier A, Simard V, Bordeleau S, Carrier J. Chapter VIII. Attachment and sleep among toddlers: Disentangling attachment security and dependency. *Monographs of the Society for Research in Child Development*. 2015; 80(1):125–140. <http://doi.org/10.1111/mono.12148>. [PubMed: 25704739]
- Belsky J. The determinants of parenting: A process model. *Child Development*. 1984; 55:83–96. <http://doi.org/10.2307/1129836>. [PubMed: 6705636]
- Belsky, J., Hsieh, K-H., Crnic, K. Mothering, fathering, and infant negativity as antecedents of boys' externalizing problems and inhibition at age 3 years: Differential susceptibility to rearing experience?; *Development and Psychopathology*. 1998. p. 301-319. <http://doi.org/10.1017/S0954579498001751>.
- Belsky J, Pluess M. Beyond diathesis stress: Differential susceptibility to environmental influences. *Psychological Bulletin*. 2009; 135(6):885–908. <http://doi.org/10.1037/a0017376>. [PubMed: 19883141]
- Belsky J, Spanier GB, Rovine M. Stability and Change in Marriage across the Transition to Parenthood. *Journal of Marriage and Family*. 1983; 45(3):567–577. <http://doi.org/10.2307/351661>.
- Belsky J, Woodworth S, Crnic K. Trouble in the Second Year: Three Questions about Family Interaction. *Child Development*. 1996; 67(2):556–578. <http://doi.org/10.1111/j.1467-8624.1996.tb01751.x>. [PubMed: 8625728]
- Blandon AY, Calkins SD, Keane SP, O'Brien M. Individual differences in trajectories of emotion regulation processes: The effects of maternal depressive symptomatology and children's physiological regulation. *Developmental Psychology*. 2008; 44(4):1110–1123. <http://doi.org/10.1037/0012-1649.44.4.1110>. [PubMed: 18605838]
- Boey CCM, Goh KL. The significance of life-events as contributing factors in childhood recurrent abdominal pain in an urban community in Malaysia. *Journal of Psychosomatic Research*. 2001; 51(4):559–562. [http://doi.org/10.1016/S0022-3999\(01\)00232-X](http://doi.org/10.1016/S0022-3999(01)00232-X). [PubMed: 11595243]

- Boldt LJ, Kochanska G, Yoon JE, Koenig Nordling J. Children's attachment to both parents from toddler age to middle childhood: links to adaptive and maladaptive outcomes. *Attachment & Human Development*. 2014; 16(3):211–229. <http://doi.org/10.1080/14616734.2014.889181>. [PubMed: 24605850]
- Bonds DD, Gondoli DM, Sturge-Apple ML, Salem LN. Parenting stress as a mediator of the relation between parenting support and optimal parenting. *Parenting*. 2002; 2(4):409–435. http://doi.org/10.1207/S15327922PAR0204_04.
- Booth A, Amato PR. Parental marital quality, parental divorce, and relations with parents. *Journal of Marriage and Family*. 1994; 56(1):21–34. <http://doi.org/10.2307/352698>.
- Booth-LaForce C, Oxford ML. Trajectories of social withdrawal from grades 1 to 6: Prediction from early parenting, attachment, and temperament. *Developmental Psychology*. 2008; 44(5):1298–1313. <http://doi.org/10.1037/a0012954>. [PubMed: 18793064]
- Borge A, Nordhagen R, Moe B, Botten G, Bakkeiteig L. Prevalence and persistence of stomach ache and headache among children. Follow-up of a cohort of Norwegian children from 4 to 10 years of age. *Acta Pædiatrica*. 1994; 83(4):433–437. <http://doi.org/10.1111/j.1651-2227.1994.tb18137.x>.
- Bowlby, J. *Attachment and loss*. New York: Basic Books; 1969.
- Boyd, H. Preparing Your Child for the Birth of a Sibling | Education.com. 2009 Mar 6. Retrieved June 16, 2015, from http://www.education.com/magazine/article/Preparing_Child_Birth_Sibling/
- Braiker, HB., Kelley, HH. *Social exchange in developing relationships*. New York, NY, US: Academic Press; 1979. p. 135-168.
- Breiman L. Random Forests. *Machine Learning*. 2001; 45(1):5–32. <http://doi.org/10.1023/A:1010933404324>.
- Breiman, L., Friedman, J., Stone, CJ., Olshen, RA. *Classification and Regression Trees*. 1. Boca Raton: Chapman and Hall/CRC; 1984.
- Broeren S, Muris P, Diamantopoulou S, Baker JR. The course of childhood anxiety symptoms: Developmental trajectories and child-related factors in normal children. *Journal of Abnormal Child Psychology*. 2013; 41(1):81–95. <http://doi.org/10.1007/s10802-012-9669-9>. [PubMed: 22836287]
- Bronfenbrenner, U. *The ecology of human development: Experiments by nature and design*. Cambridge, Mass: Harvard University Press; 1979.
- Brown DD, Weatherhol TN, Burns BM. Understanding parent reports of children's attention behaviors: Role of children's attention skills, temperament, and home environment. *Journal of Early Childhood and Infant Psychology*. 2010; 6:41.
- Brownell CA, Kopp CB. Socioemotional development in the toddler years: Transitions and transformations. 2007:261–284.
- Buist KL, Dekovi M, Prinzie P. Sibling relationship quality and psychopathology of children and adolescents: A meta-analysis. *Clinical Psychology Review*. 2013; 33(1):97–106. <http://doi.org/10.1016/j.cpr.2012.10.007>. [PubMed: 23159327]
- Buist KL, Vermande M. Sibling relationship patterns and their associations with child competence and problem behavior. *Journal of Family Psychology*. 2014; 28(4):529–537. <http://doi.org/10.1037/a0036990>. [PubMed: 24866727]
- Burr, WR., Klein, SR. *Reexamining family stress: new theory and research*. Thousand Oaks, Calif: Sage Publications; 1994.
- Calkins SD. Origins and outcomes of individual differences in emotion regulation. *Monographs of the Society for Research in Child Development*. 1994; 59(2–3):53–72. <http://doi.org/10.1111/j.1540-5834.1994.tb01277.x>. [PubMed: 7984167]
- Calkins SD, Fox NA. The relations among infant temperament, security of attachment, and behavioral inhibition at twenty-four months. *Child Development*. 1992; 63(6):1456–1472. <http://doi.org/10.1111/j.1467-8624.1992.tb01707.x>. [PubMed: 1446562]
- Campbell, SB. *Behavior problems in preschool children: Clinical and developmental issues*. New York: Guilford Press; 2002.
- Campbell, SB. *Maladjustment in preschool children: A developmental psychopathology perspective*. In: McCartney, K., Phillips, D., editors. *Blackwell handbook of early childhood development*. Blackwell Publishing Ltd; 2006. p. 358-377.

- Campbell, SB. A developmental and family systems perspective on mental health in young children. In: Groark, C., editor. *Early childhood intervention: Shaping the future for children with special needs and their families*. Vol. 2. Santa Barbara: Praeger; 2011. p. 205-229.
- Campbell SB, Matestic P, von Stauffenberg C, Mohan R, Kirchner T. Trajectories of maternal depressive symptoms, maternal sensitivity, and children's functioning at school entry. *Developmental Psychology*. 2007; 43(5):1202–1215. <http://doi.org/10.1037/0012-1649.43.5.1202>. [PubMed: 17723045]
- Campis LK, Lyman RD, Prentice-Dunn S. The parental locus of control scale: Development and validation. *Journal of Clinical Child Psychology*. 1986; 15(3):260–267. http://doi.org/10.1207/s15374424jccp1503_10.
- Campo JV, Fritsch SL. Somatization in children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1994; 33(9):1223–1235. <http://doi.org/10.1097/00004583-199411000-00003>. [PubMed: 7995788]
- Carter AS, Godoy L, Wagmiller RL, Veliz P, Marakovitz S, Briggs-Gowan MJ. Internalizing trajectories in young boys and girls: The whole is not a simple sum of its parts. *Journal of Abnormal Child Psychology*. 2010; 38(1):19–31. <http://doi.org/10.1007/s10802-009-9342-0>. [PubMed: 19662525]
- Caspi A, Harrington H, Milne B, Amell JW, Theodore RF, Moffitt TE. Children's behavioral styles at age 3 are linked to their adult personality traits at age 26. *Journal of Personality*. 2003; 71(4):495–514. <http://doi.org/10.1111/1467-6494.7104001>. [PubMed: 12901429]
- Census Bureau, U. S. American FactFinder. Retrieved May 13, 2015, from <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>
- Chao, EL., Utgoff, KP. *The National Compensation Survey: Employee benefits in private industry in the United States, 2000*. Washington, DC: US Department of Labor; 2003. Retrieved from <http://stats.bls.gov/ncs/ebs/sp/ebbl0021.pdf>
- Chen N, Deater-Deckard K, Bell MA. The role of temperament by family environment interactions in child maladjustment. *Journal of Abnormal Child Psychology*. 2014; 42(8):1251–1262. <http://doi.org/10.1007/s10802-014-9872-y>. [PubMed: 24691836]
- Chen X, Wang L, Cao R. Shyness-sensitivity and unsociability in rural Chinese children: Relations with social, school, and psychological adjustment. *Child Development*. 2011; 82(5):1531–1543. <http://doi.org/10.1111/j.1467-8624.2011.01616.x>. [PubMed: 21790539]
- Choe DE, Olson SL, Sameroff AJ. The interplay of externalizing problems and physical and inductive discipline during childhood. *Developmental Psychology*. 2013; 49(11):2029–2039. <http://doi.org/10.1037/a0032054>. [PubMed: 23458660]
- Cicchetti D. The emergence of developmental psychopathology. *Child Development*. 1984; 55(1):1–7. <http://doi.org/10.2307/1129830>. [PubMed: 6705613]
- Ciechanowski PS, Walker E, Katon W, Russo J. Attachment theory: A model for health care utilization and somatization. *Psychosomatic Medicine*. 2002; 64(4):660–667. <http://doi.org/10.1097/01.PSY.0000021948.90613.76>. [PubMed: 12140356]
- Collins WA, Maccoby EE, Steinberg L, Hetherington EM, Bornstein MH. Contemporary research on parenting: The case for nature and nurture. *American Psychologist*. 2000; 55(2):218–232. <http://doi.org/10.1037/0003-066X.55.2.218>. [PubMed: 10717969]
- Combs-Ronto LA, Olson SL, Lunkenheimer ES, Sameroff AJ. Interactions between maternal parenting and children's early disruptive behavior: Bidirectional associations across the transition from preschool to school entry. *Journal of Abnormal Child Psychology*. 2009; 37(8):1151–1163. <http://doi.org/10.1007/s10802-009-9332-2>. [PubMed: 19533326]
- Connell AM, Goodman SH. The association between psychopathology in fathers versus mothers and children's internalizing and externalizing behavior problems: A meta-analysis. *Psychological Bulletin*. 2002; 128(5):746–773. <http://doi.org/10.1037/0033-2909.128.5.746>. [PubMed: 12206193]
- Coplan RJ, Arbeau KA, Armer M. Don't fret, be supportive! Maternal characteristics linking child shyness to psychosocial and school adjustment in kindergarten. *Journal of Abnormal Child Psychology*. 2007; 36(3):359–371. <http://doi.org/10.1007/s10802-007-9183-7>. [PubMed: 17899358]

- Coplan RJ, Hughes K, Bosacki S, Rose-Krasnor L. Is silence golden? Elementary school teachers' strategies and beliefs regarding hypothetical shy/quiet and exuberant/talkative children. *Journal of Educational Psychology*. 2011; 103(4):939–951. <http://doi.org/10.1037/a0024551>.
- Cowan, CP., Cowan, PA. When partners become parents: The big life change for couples. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers; 2000.
- Cox MJ, Paley B. Understanding families as systems. *Current Directions in Psychological Science*. 2003; 12(5):193–196. <http://doi.org/10.1111/1467-8721.01259>.
- Crawford NA, Schrock M, Woodruff-Borden J. Child internalizing symptoms: Contributions of child temperament, maternal negative affect, and family functioning. *Child Psychiatry & Human Development*. 2010; 42(1):53–64. <http://doi.org/10.1007/s10578-010-0202-5>.
- Crick NR, Dodge KA. A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*. 1994; 115(1):74–101. <http://doi.org/10.1037/0033-2909.115.1.74>.
- Crnic KA, Gaze C, Hoffman C. Cumulative parenting stress across the preschool period: Relations to maternal parenting and child behaviour at age 5. *Infant and Child Development*. 2005; 14(2):117–132. <http://doi.org/10.1002/icd.384>.
- Crnic KA, Greenberg MT. Minor parenting stresses with young children. *Child Development*. 1990; 61(5):1628–1637. <http://doi.org/10.1111/j.1467-8624.1990.tb02889.x>. [PubMed: 2245752]
- Cummings EM, Davies PT. Maternal depression and child development. *Journal of Child Psychology and Psychiatry*. 1994; 35(1):73–122. <http://doi.org/10.1111/j.1469-7610.1994.tb01133.x>. [PubMed: 8163630]
- Cummings EM, Davies PT. Effects of marital conflict on children: Recent advances and emerging themes in process-oriented research. *Journal of Child Psychology and Psychiatry*. 2002; 43(1):31–63. <http://doi.org/10.1111/1469-7610.00003>. [PubMed: 11848336]
- Cummings, EM., Davies, PT. Marital conflict and children: An emotional security perspective. Guilford Press; 2011.
- Cummings, EM., Davies, PT., Campbell, SB. Developmental psychopathology and family process: Theory, research, and clinical implications. New York, NY, US: Guilford Press; 2000.
- Cummings EM, Goeke-Morey MC, Papp LM. Everyday marital conflict and child aggression. *Journal of Abnormal Child Psychology*. 2004; 32(2):191–202. <http://doi.org/10.1023/B:JACP.0000019770.13216.be>. [PubMed: 15164860]
- Cummings, EM., Merrilees, CE., George, MW. The role of the father in child development. 5. Hoboken, NJ, US: John Wiley & Sons Inc; 2010. Fathers, marriages, and families: Revisiting and updating the framework for fathering in family context; p. 154–176.
- Dahl RE, El-Sheikh M. Considering sleep in a family context: Introduction to the special issue. *Journal of Family Psychology*. 2007; 21(1):1–3. <http://doi.org/10.1037/0893-3200.21.1.1>. [PubMed: 17371104]
- Dallaire DH, Weinraub M. Predicting children's separation anxiety at age 6: The contributions of infant–mother attachment security, maternal sensitivity, and maternal separation anxiety. *Attachment & Human Development*. 2005; 7(4):393–408. <http://doi.org/10.1080/14616730500365894>. [PubMed: 16332583]
- Davies PT, Cicchetti D, Martin MJ. Toward greater specificity in identifying associations among interparental aggression, child emotional reactivity to conflict, and child problems. *Child Development*. 2012; 83(5):1789–1804. <http://doi.org/10.1111/j.1467-8624.2012.01804.x>. [PubMed: 22716918]
- Davies PT, Cummings EM. Marital conflict and child adjustment: An emotional security hypothesis. *Psychological Bulletin*. 1994; 116(3):387–411. <http://doi.org/10.1037/0033-2909.116.3.387>. [PubMed: 7809306]
- Davies PT, Sturge-Apple ML, Winter MA, Cummings EM, Farrell D. Child adaptational development in contexts of interparental conflict over time. *Child Development*. 2006; 77(1):218–233. <http://doi.org/10.1111/j.1467-8624.2006.00866.x>. [PubMed: 16460535]
- Davies PT, Sturge-Apple ML, Woitach MJ, Cummings M. A process analysis of the transmission of distress from interparental conflict to parenting: Adult relationship security as an explanatory

- mechanism. *Developmental Psychology*. 2009; 45(6):1761–1773. <http://doi.org/10.1037/a0016426>. [PubMed: 19899930]
- Deater-Deckard, K., Dodge, K.A., Bates, J.E., Pettit, G.S. Multiple risk factors in the development of externalizing behavior problems: Group and individual differences; *Development and Psychopathology*. 1998. p. 469–493. <http://doi.org/null>
- DeGarmo DS, Patras J, Eap S. Social support for divorced fathers' parenting: Testing a stress-buffering model. *Family Relations*. 2008; 57(1):35–48. <http://doi.org/10.1111/j.1741-3729.2007.00481.x>. [PubMed: 19177181]
- Degnan KA, Fox NA. Behavioral inhibition and anxiety disorders: Multiple levels of a resilience process. *Development and Psychopathology*. 2007; 19(03):729–746. <http://doi.org/10.1017/S0954579407000363>. [PubMed: 17705900]
- Degnan KA, Henderson HA, Fox NA, Rubin KH. Predicting social wariness in middle childhood: The moderating roles of childcare history, maternal personality and maternal behavior. *Social Development*. 2008; 17(3):471–487. <http://doi.org/10.1111/j.1467-9507.2007.00437.x>. [PubMed: 20463856]
- DeKlyen M, Bierbaum MA, Speltz ML, Greenberg MT. Fathers and preschool behavior problems. *Developmental Psychology*. 1998; 34(2):264–275. <http://doi.org/10.1037/0012-1649.34.2.264>. [PubMed: 9541779]
- DeKlyen M, Speltz ML, Greenberg MT. Fathering and early onset conduct problems: Positive and negative parenting, father–son attachment, and the marital context. *Clinical Child and Family Psychology Review*. 1998; 1(1):3–21. <http://doi.org/10.1023/A:1021844214633>. [PubMed: 11324076]
- DeLeon CW, Karraker KH. Intrinsic and extrinsic factors associated with night waking in 9-month-old infants. *Infant Behavior and Development*. 2007; 30(4):596–605. <http://doi.org/10.1016/j.infbeh.2007.03.009>. [PubMed: 17416420]
- Denham SA. Social cognition, prosocial behavior, and emotion in preschoolers: Contextual validation. *Child Development*. 1986; 57(1):194–201. <http://doi.org/10.2307/1130651>.
- De Wolff MS, van Ijzendoorn MH. Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development*. 1997; 68(4):571–591. <http://doi.org/10.1111/j.1467-8624.1997.tb04218.x>. [PubMed: 9306636]
- Dhossche D, Ferdinand R, van der Ende J, Verhulst F. Outcome of self-reported functional-somatic symptoms in a community sample of adolescents. *Annals of Clinical Psychiatry*. 2001; 13(4):191–199. <http://doi.org/10.3109/10401230109147383>. [PubMed: 11958361]
- Dirks MA, Persram R, Recchia HE, Howe N. Sibling relationships as sources of risk and resilience in the development and maintenance of internalizing and externalizing problems during childhood and adolescence. *Clinical Psychology Review*. 2015; 42:145–155. <http://doi.org/10.1016/j.cpr.2015.07.003>. [PubMed: 26254557]
- Dishion, T.J., Patterson, G.R. The development and ecology of antisocial behavior in children and adolescents. In: Cicchetti, D., Cohen, D.J., editors. *Developmental psychopathology*, Vol 3: Risk, disorder, and adaptation. 2. Hoboken, NJ, US: John Wiley & Sons Inc; 2006. p. 503–541.
- Dix T, Yan N. Mothers' depressive symptoms and infant negative emotionality in the prediction of child adjustment at age 3: Testing the maternal reactivity and child vulnerability hypotheses. *Development and Psychopathology*. 2014; 26(01):111–124. <http://doi.org/10.1017/S0954579413000898>. [PubMed: 24280416]
- Domènech-Llaberia E, Jané C, Canals J, Ballespí S, Esparó G, Garralda E. Parental reports of somatic symptoms in preschool children: Prevalence and associations in a Spanish sample. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2004; 43(5):598–604. <http://doi.org/10.1097/00004583-200405000-00013>. [PubMed: 15100566]
- Dunn J. Sibling relationships in early childhood. *Child Development*. 1983; 54(4):787–811. <http://doi.org/10.2307/1129886>.
- Dunn J. Sibling influences on childhood development. *Journal of Child Psychology and Psychiatry*. 1988; 29(2):119–127. <http://doi.org/10.1111/j.1469-7610.1988.tb00697.x>. [PubMed: 3286666]

- Dunn J, Brown J, Slomkowski C, Tesla C, Youngblade L. Young children's understanding of other people's feelings and beliefs: Individual differences and their antecedents. *Child Development*. 1991; 62(6):1352–1366. <http://doi.org/10.2307/1130811>. [PubMed: 1786720]
- Dunn J, Kendrick C. The arrival of a sibling: Changes in patterns of interaction between mother and first-born child. *Journal of Child Psychology and Psychiatry*. 1980; 21(2):119–132. <http://doi.org/10.1111/j.1469-7610.1980.tb00024.x>. [PubMed: 7372742]
- Dunn, J., Kendrick, C. *Siblings: love, envy, & understanding*. Cambridge, Mass: Harvard University Press; 1982.
- Dunn J, Kendrick C, MacNamee R. The reaction of first-born children to the birth of a sibling: Mothers' reports. *Journal of Child Psychology and Psychiatry*. 1981; 22(1):1–18. <http://doi.org/10.1111/j.1469-7610.1981.tb00527.x>. [PubMed: 7451583]
- Dunn J, Munn P. Becoming a family member: Family conflict and the development of social understanding in the second year. *Child Development*. 1985; 56(2):480–492. <http://doi.org/10.2307/1129735>.
- Dunn J, Munn P. Siblings and the development of prosocial behaviour. *International Journal of Behavioral Development*. 1986; 9(3):265–284. <http://doi.org/10.1177/016502548600900301>.
- Dunn J, Slomkowski C, Beardsall L. Sibling relationships from the preschool period through middle childhood and early adolescence. *Developmental Psychology*. 1994; 30(3):315–324. <http://doi.org/10.1037/0012-1649.30.3.315>.
- Dunst CJ, Tivette CM, Hamby DW. Measuring the help giving practices of Human Services Program Practitioners. *Human Relations*. 1996; 49(6):815–835. <http://doi.org/10.1177/001872679604900605>.
- Egger HL, Angold A. Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of Child Psychology and Psychiatry*. 2006; 47(3–4):313–337. <http://doi.org/10.1111/j.1469-7610.2006.01618.x>. [PubMed: 16492262]
- Egger HL, Costello EJ, Erkanli A, Angold A. Somatic complaints and psychopathology in children and adolescents: Stomach aches, musculoskeletal pains, and headaches. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1999; 38(7):852–860. <http://doi.org/10.1097/00004583-199907000-00015>. [PubMed: 10405503]
- Eggum ND, Eisenberg N, Spinrad TL, Valiente C, Edwards A, Kupfer AS, Reiser M. Predictors of withdrawal: Possible precursors of avoidant personality disorder. *Development and Psychopathology*. 2009; 21(Special Issue 03):815–838. <http://doi.org/10.1017/S0954579409000443>. [PubMed: 19583885]
- Ehrenberg MF, Gearing-Small M, Hunter MA, Small BJ. Childcare task division and shared parenting attitudes in dual-earner families with young children. *Family Relations*. 2001; 50(2):143–153. <http://doi.org/10.1111/j.1741-3729.2001.00143.x>.
- Eisenberg, N., Fabes, RA. Emotion regulation and children's socioemotional competence. In: Balter, L., Tamis-LeMonda, CS., editors. *Child psychology: A handbook of contemporary issues*. 2. New York, NY, US: Psychology Press; 2006. p. 357–381.
- Elder, GH., Jr, Caspi, A. Human development and social change: An emerging perspective on the life course. In: Bolger, N., Caspi, A., Downey, G., Moorehouse, M., editors. *Persons in context: Developmental processes*. New York, NY, US: Cambridge University Press; 1988. p. 77–113.
- El-Sheikh M, Buckhalt JA, Cummings E, Keller P. Sleep disruptions and emotional insecurity are pathways of risk for children. *Journal of Child Psychology and Psychiatry*. 2007; 48(1):88–96. <http://doi.org/10.1111/j.1469-7610.2006.01604.x>. [PubMed: 17244274]
- El-Sheikh M, Hinnant JB, Erath SA. Marital conflict, vagal regulation, and children's sleep: A longitudinal investigation. *Monographs of the Society for Research in Child Development*. 2015; 80(1):89–106. <http://doi.org/10.1111/mono.12146>. [PubMed: 25704737]
- El-Sheikh M, Sadeh A. I. Sleep and Development: Introduction to the Monograph. *Monographs of the Society for Research in Child Development*. 2015; 80(1):1–14. <http://doi.org/10.1111/mono.12141>.
- Eminson DM. Medically unexplained symptoms in children and adolescents. *Clinical Psychology Review*. 2007; 27(7):855–871. <http://doi.org/10.1016/j.cpr.2007.07.007>. [PubMed: 17804131]

- Fearon RP, Bakermans-Kranenburg MJ, Van IJzendoorn MH, Lapsley AM, Roisman GI. The significance of insecure attachment and disorganization in the development of children's externalizing behavior: A meta-analytic study. *Child Development*. 2010; 81(2):435–456. <http://doi.org/10.1111/j.1467-8624.2009.01405.x>. [PubMed: 20438450]
- Fearon RP, Belsky J. Attachment and attention: Protection in relation to gender and cumulative social-contextual adversity. *Child Development*. 2004; 75(6):1677–1693. <http://doi.org/10.1111/j.1467-8624.2004.00809.x>. [PubMed: 15566372]
- Fearon RP, Belsky J. Infant–mother attachment and the growth of externalizing problems across the primary-school years. *Journal of Child Psychology and Psychiatry*. 2011; 52(7):782–791. <http://doi.org/10.1111/j.1469-7610.2010.02350.x>. [PubMed: 21214546]
- Feng X, Shaw DS, Silk JS. Developmental trajectories of anxiety symptoms among boys across early and middle childhood. *Journal of Abnormal Psychology*. 2008; 117(1):32–47. <http://doi.org/10.1037/0021-843X.117.1.32>. [PubMed: 18266484]
- Field T. Infants of depressed mothers. *Development and Psychopathology*. 1992; 4(01):49–66. <http://doi.org/10.1017/S0954579400005551>.
- Field T, Reite M. Children's responses to separation from mother during the birth of another child. *Child Development*. 1984; 55(4):1308–1316. <http://doi.org/10.2307/1130000>. [PubMed: 6488959]
- Fox NA, Henderson HA, Marshall PJ, Nichols KE, Ghera MM. Behavioral inhibition: Linking biology and behavior within a developmental framework. *Annual Review of Psychology*. 2005; 56(1):235–262. <http://doi.org/10.1146/annurev.psych.55.090902.141532>.
- Fox NA, Henderson HA, Rubin KH, Calkins SD, Schmidt LA. Continuity and discontinuity of behavioral inhibition and exuberance: Psychophysiological and behavioral influences across the first four years of life. *Child Development*. 2001; 72(1):1–21. <http://doi.org/10.1111/1467-8624.00262>. [PubMed: 11280472]
- Galli F, D'Antuono G, Tarantino S, Viviano F, Borrelli O, Chirumbolo A, ... Guidetti V. Headache and recurrent abdominal pain: A controlled study by the means of the Child Behaviour Checklist (CBCL). *Cephalalgia*. 2007; 27(3):211–219. <http://doi.org/10.1111/j.1468-2982.2006.01271.x>. [PubMed: 17381555]
- Garber J, Zeman J, Walker LS. Recurrent abdominal pain in children: Psychiatric diagnoses and parental psychopathology. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1990; 29(4):648–656. <http://doi.org/10.1097/00004583-199007000-00021>. [PubMed: 2387802]
- Garcia MM, Shaw DS, Winslow EB, Yaggi KE. Destructive sibling conflict and the development of conduct problems in young boys. *Developmental Psychology*. 2000; 36(1):44–53. <http://doi.org/10.1037/0012-1649.36.1.44>. [PubMed: 10645743]
- Gardner, F., Shaw, DS. Behavioral problems of infancy and preschool children (0–5). In: Rutter, M., editor. *Child and adolescent psychiatry*. Malden, Mass: Blackwell Pub; 2008. p. 882–893.
- Gartstein MA, Putnam SP, Rothbart MK. Etiology of preschool behavior problems: Contributions of temperament attributes in early childhood. *Infant Mental Health Journal*. 2012; 33(2):197–211. <http://doi.org/10.1002/imhj.21312>. [PubMed: 28520102]
- Gazelle H, Ladd GW. Anxious solitude and peer exclusion: A diathesis–stress model of internalizing trajectories in childhood. *Child Development*. 2003; 74(1):257–278. <http://doi.org/10.1111/1467-8624.00534>. [PubMed: 12625449]
- Gershoff ET, Grogan-Kaylor A. Spanking and child outcomes: Old controversies and new meta-analyses. *Journal of Family Psychology*. 2016; 30:453–469. <http://doi.org/10.1037/fam0000191>. [PubMed: 27055181]
- Gilliom, M., Shaw, DS. Codevelopment of externalizing and internalizing problems in early childhood; *Development and Psychopathology*. 2004. p. 313–333. <http://doi.org/10.1017/S0954579404044530>
- Goeke-Morey MC, Cummings EM. Impact of father involvement: A closer look at indirect effects models involving marriage and child adjustment. *Applied Developmental Science*. 2007; 11(4):221–225. <http://doi.org/10.1080/10888690701762126>.

- Goeke-Morey MC, Papp LM, Cummings EM. Changes in marital conflict and youths' responses across childhood and adolescence: A test of sensitization. *Development and Psychopathology*. 2013; 25:241–251. <http://doi.org/10.1017/S0954579412000995>. [PubMed: 23398762]
- Goodman SH, Rouse MH, Connell AM, Broth MR, Hall CM, Heyward D. Maternal depression and child psychopathology: A meta-analytic review. *Clinical Child and Family Psychology Review*. 2011; 14(1):1–27. <http://doi.org/10.1007/s10567-010-0080-1>. [PubMed: 21052833]
- Gordis, FW., Others, A. Young children's understanding of simultaneous conflicting emotions. 1989. Retrieved from <http://eric.ed.gov/?id=ED306038>
- Gottlieb LN, Mendelson MJ. Parental support and firstborn girls' adaptation to the birth of a sibling. *Journal of Applied Developmental Psychology*. 1990; 11(1):29–48. [http://doi.org/10.1016/0193-3973\(90\)90030-N](http://doi.org/10.1016/0193-3973(90)90030-N).
- Gottlieb LN, Mendelson MJ. Mothers' moods and social support when a second child is born. *Maternal-Child Nursing Journal*. 1995; 23(1):3–14. [PubMed: 7791380]
- Graham AA, Coplan RJ. Shyness, sibling relationships, and young children's socioemotional adjustment at preschool. *Journal of Research in Childhood Education*. 2012; 26(4):435–449. <http://doi.org/10.1080/02568543.2012.711802>.
- Gregory AM, Eley TC, O'Connor TG, Rijdsdijk FV, Plomin R. Family influences on the association between sleep problems and anxiety in a large sample of pre-school aged twins. *Personality and Individual Differences*. 2005; 39(8):1337–1348. <http://doi.org/10.1016/j.paid.2005.06.008>.
- Grist RM, Field AP. The mediating effect of cognitive development on children's worry elaboration. *Journal of Behavior Therapy and Experimental Psychiatry*. 2012; 43(2):801–807. <http://doi.org/10.1016/j.jbtep.2011.11.002>. [PubMed: 22178472]
- Groh AM, Roisman GI, van IJzendoorn MH, Bakermans-Kranenburg MJ, Fearon RP. The significance of insecure and disorganized attachment for children's internalizing symptoms: A meta-analytic study. *Child Development*. 2012; 83(2):591–610. <http://doi.org/10.1111/j.1467-8624.2011.01711.x>. [PubMed: 22235928]
- Gross DD, Tucker SMS. Parenting confidence during toddlerhood: A comparison of mothers and fathers. *Nurse Practitioner*. 1994; 19(10)
- Grunau R, Whitfield M, Petrie J, Fryer L. Extremely low birth weight (ELBW) toddlers are relatively responsive to pain at 18 months corrected age compared to larger birth weight children. *Early Human Development*. 1993; 35(3):232–233. [http://doi.org/10.1016/0378-3782\(93\)90126-F](http://doi.org/10.1016/0378-3782(93)90126-F).
- Gullicks JN, Crase SJ. Sibling behavior with a newborn: Parents' expectations and observations. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*. 1993; 22(5):438–444. <http://doi.org/10.1111/j.1552-6909.1993.tb01827.x>.
- Guralnick MJ, Hammond MA, Neville B, Connor RT. The relationship between sources and functions of social support and dimensions of child- and parent-related stress. *Journal of Intellectual Disability Research*. 2008; 52(12):1138–1154. <http://doi.org/10.1111/j.1365-2788.2008.01073.x>. [PubMed: 18507703]
- Haan LD, Hawley DR, Deal JE. Operationalizing family resilience: A methodological strategy. *The American Journal of Family Therapy*. 2002; 30(4):275–291. <http://doi.org/10.1080/01926180290033439>.
- Hall WA, Zubrick SR, Silburn SR, Parsons DE, Kurinczuk JJ. A model for predicting behavioural sleep problems in a random sample of Australian pre-schoolers. *Infant and Child Development*. 2007; 16(5):509–523. <http://doi.org/10.1002/icd.527>.
- Hart MS, Kelley ML. Fathers' and mothers' work and family issues as related to internalizing and externalizing behavior of children attending day care. *Journal of Family Issues*. 2006; 27(2):252–270. <http://doi.org/10.1177/0192513X05280992>.
- Hastings, PD., Nuselovici, JN., Rubin, KH., Cheah, C. Shyness, parenting, and parent-child relationships. In: Rubin, KH., Coplan, RJ., editors. *The development of shyness and social withdrawal*. New York, NY, US: Guilford Press; 2010. p. 107-130.
- Hastings PD, Ruttle PL, Serbin LA, Mills RSL, Stack DM, Schwartzman AE. Adrenocortical responses to strangers in preschoolers: Relations with parenting, temperament, and psychopathology. *Developmental Psychobiology*. 2011; 53(7):694–710. <http://doi.org/10.1002/dev.20545>. [PubMed: 21432849]

- Hay DF, Waters CS, Perra O, Swift N, Kairis V, Phillips R, ... van Goozen S. Precursors to aggression are evident by 6 months of age. *Developmental Science*. 2014; 17(3):471–480. <http://doi.org/10.1111/desc.12133>. [PubMed: 24612281]
- Heinicke, CM., Westheimer, I. Brief separations. Oxford, England: International U. Press; 1966.
- Herba CM, Tremblay RE, Boivin M, et al. Maternal depressive symptoms and children's emotional problems: Can early child care help children of depressed mothers? *JAMA Psychiatry*. 2013; 70(8):830–838. <http://doi.org/10.1001/jamapsychiatry.2013.1361>. [PubMed: 23784556]
- Herbert SD, Harvey EA, Lugo-Candelas CI, Breaux RP. Early fathering as a predictor of later psychosocial functioning among preschool children with behavior problems. *Journal of Abnormal Child Psychology*. 2013; 41(5):691–703. <http://doi.org/10.1007/s10802-012-9706-8>. [PubMed: 23269560]
- Herrera C, Dunn J. Early experiences with family conflict: Implications for arguments with a close friend. *Developmental Psychology*. 1997; 33(5):869–881. <http://doi.org/10.1037/0012-1649.33.5.869>. [PubMed: 9300220]
- Hill AL, Degnan KA, Calkins SD, Keane SP. Profiles of externalizing behavior problems for boys and girls across preschool: The roles of emotion regulation and inattention. *Developmental Psychology*. 2006; 42(5):913–928. <http://doi.org/10.1037/0012-1649.42.5.913>. [PubMed: 16953696]
- Hill NE, Bush KR. Relationships between parenting environment and children's mental health among African American and European American mothers and children. *Journal of Marriage and Family*. 2001; 63(4):954–966. <http://doi.org/10.1111/j.1741-3737.2001.00954.x>.
- Hill R. Generic features of families under stress. *Social Casework*. 1958; 39:139–150.
- Hinde RA, Stevenson-Hinde J. Interpersonal relationships and child development. *Annual Progress in Child Psychiatry & Child Development*. 1988:5–26.
- Hinde RA, Stevenson-Hinde J, Tamplin A. Characteristics of 3- to 4-year-olds assessed at home and their interactions in preschool. *Developmental Psychology*. 1985; 21(1):130–140. <http://doi.org/10.1037/0012-1649.21.1.130>.
- Hoagwood KE, Cavaleri MA, Olin SS, Burns BJ, Slaton E, Gruttadaro D, Hughes R. Family support in children's mental health: A review and synthesis. *Clinical Child and Family Psychology Review*. 2010; 13(1):1–45. <http://doi.org/10.1007/s10567-009-0060-5>. [PubMed: 20012893]
- Holden, GW., Zambarano, RJ. Passing the rod: Similarities between parents and their young children in orientations toward physical punishment. In: Sigel, IE, McGillicuddy-DeLisi, AV., Goodnow, JJ., editors. *Parental belief systems: The psychological consequences for children*. 2. Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc; 1992. p. 143–172.
- Ivanova MY, Achenbach TM, Rescorla LA, Harder VS, Ang RP, Bilenberg N, ... Verhulst FC. Preschool psychopathology reported by parents in 23 societies: Testing the seven-syndrome model of the Child Behavior Checklist for ages 1.5–5. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2010; 49(12):1215–1224. <http://doi.org/10.1016/j.jaac.2010.08.019>. [PubMed: 21093771]
- Jacobvitz, D., Hazen, N., Curran, M., Hitchens, K. Observations of early triadic family interactions: Boundary disturbances in the family predict symptoms of depression, anxiety, and attention-deficit/hyperactivity disorder in middle childhood; *Development and Psychopathology*. 2004. p. 577–592. <http://doi.org/10.1017/S0954579404004675>
- Jamshidian M, Jalal S. Tests of homoscedasticity, normality, and missing completely at random for incomplete multivariate data. *Psychometrika*. 2010; 75(4):649–674. <http://doi.org/10.1007/s11336-010-9175-3>. [PubMed: 21720450]
- Jenni OG, Achermann P, Carskadon MA. Homeostatic sleep regulation in adolescents. *Sleep-New York then Westchester*. 2005; 28(11):1446.
- Jenni OG, Carskadon MA. Sleep behavior and sleep regulation from infancy through adolescence: Normative aspects. *Sleep Medicine Clinics*. 2007; 2(3):321–329. <http://doi.org/10.1016/j.jsmc.2007.05.001>.
- Jenni OG, Fuhrer HZ, Iglowstein I, Molinari L, Largo RH. A longitudinal study of bed sharing and sleep problems among Swiss children in the first 10 years of life. *Pediatrics*. 2005; 115:233–240. <http://doi.org/10.1542/peds.2004-0815E>. [PubMed: 15866857]

- Johnston JR, González R, Campbell LEG. Ongoing postdivorce conflict and child disturbance. *Journal of Abnormal Child Psychology*. 1987; 15(4):493–509. <http://doi.org/10.1007/BF00917236>. [PubMed: 3437086]
- Jones DC, Abbey BB, Cumberland A. The development of display rule knowledge: Linkages with family expressiveness and social competence. *Child Development*. 1998; 69(4):1209–1222. <http://doi.org/10.1111/j.1467-8624.1998.tb06168.x>. [PubMed: 9768494]
- Jones LB, Rothbart MK, Posner MI. Development of executive attention in preschool children. *Developmental Science*. 2003; 6(5):498–504. <http://doi.org/10.1111/1467-7687.00307>.
- Jordan PL. Support behaviors identified as helpful and desired by second-time parents over the perinatal period. *Maternal-Child Nursing Journal*. 1989; 18(2):133–145. [PubMed: 2490740]
- Jouriles EN, Farris AM. Effects of marital conflict on subsequent parent-son interactions. *Behavior Therapy*. 1992; 23(3):355–374. [http://doi.org/10.1016/S0005-7894\(05\)80163-7](http://doi.org/10.1016/S0005-7894(05)80163-7).
- Kaczynski KJ, Lindahl KM, Malik NM, Laurenceau JP. Marital conflict, maternal and paternal parenting, and child adjustment: A test of mediation and moderation. *Journal of Family Psychology*. 2006; 20(2):199–208. <http://doi.org/10.1037/0893-3200.20.2.199>. [PubMed: 16756395]
- Kagan J. Temperament and the reactions to unfamiliarity. *Child Development*. 1997; 68(1):139–143. <http://doi.org/10.1111/j.1467-8624.1997.tb01931.x>. [PubMed: 9084130]
- Kagan J, Reznick JS, Snidman N. The physiology and psychology of behavioral inhibition in children. *Child Development*. 1987; 58(6):1459–1473. [PubMed: 3691195]
- Kagan J, Reznick JS, Snidman N. Biological bases of childhood shyness. *Science*. 1988; 240(4849):167–171. <http://doi.org/10.1126/science.3353713>. [PubMed: 3353713]
- Kagan J, Snidman N. Temperamental factors in human development. *American Psychologist*. 1991; 46(8):856–862. <http://doi.org/10.1037/0003-066X.46.8.856>. [PubMed: 1928938]
- Kataria S, Swanson MS, Trevathan GE. Persistence of sleep disturbances in preschool children. *The Journal of Pediatrics*. 1987; 110(4):642–646. [http://doi.org/10.1016/S0022-3476\(87\)80571-1](http://doi.org/10.1016/S0022-3476(87)80571-1). [PubMed: 3559818]
- Kearney CA, Sims KE, Pursell CR, Tillotson CA. Separation anxiety disorder in young children: A longitudinal and family analysis. *Journal of Clinical Child & Adolescent Psychology*. 2003; 32(4):593–598. http://doi.org/10.1207/S15374424JCCP3204_12. [PubMed: 14710468]
- Keenan K, Shaw D. Developmental and social influences on young girls' early problem behavior. *Psychological Bulletin*. 1997; 121(1):95–113. <http://doi.org/10.1037/0033-2909.121.1.95>. [PubMed: 9000893]
- Kelloway EK, Gottlieb BH, Barham L. The source, nature, and direction of work and family conflict: A longitudinal investigation. *Journal of Occupational Health Psychology*. 1999; 4(4):337–346. <http://doi.org/10.1037/1076-8998.4.4.337>. [PubMed: 10526838]
- Kendrick C, Dunn J. Protest or pleasure? The response of first-born children to interactions between their mothers and infant siblings. *Journal of Child Psychology and Psychiatry*. 1982; 23(2):117–129. <http://doi.org/10.1111/j.1469-7610.1982.tb00057.x>. [PubMed: 7068789]
- Kingston L, Prior M. The development of patterns of stable, transient, and school-age onset aggressive behavior in young children. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1995; 34(3):348–358. <http://doi.org/10.1097/00004583-199503000-00021>. [PubMed: 7896677]
- Klackenberg G. Sleep behaviour studied longitudinally. *Acta Pædiatrica*. 1982; 71(3):501–506. <http://doi.org/10.1111/j.1651-2227.1982.tb09459.x>.
- Kline GH, Julien D, Baucom B, Hartman S, Gilbert K, Gonzales T, Markman HJ. The Interactional Dimensions Coding System: A global system for couple interactions. *Couple observational coding systems*. 2004:113–126.
- Kochanska G. Toward a synthesis of parental socialization and child temperament in early development of conscience. *Child Development*. 1993; 64(2):325–347. <http://doi.org/10.2307/1131254>.
- Kochanska G, Kim S. Toward a new understanding of legacy of early attachments for future antisocial trajectories: Evidence from two longitudinal studies. *Development and Psychopathology*. 2012; 24(3):783–806. <http://doi.org/10.1017/S0954579412000375>. [PubMed: 22781855]

- Kojima Y, Irisawa M, Wakita M. The impact of a second infant on interactions of mothers and firstborn children. *Journal of Reproductive and Infant Psychology*. 2005; 23(1):103–114. <http://doi.org/10.1080/02646830512331330910>.
- Kolak AM, Volling BL. Sibling jealousy in early childhood: longitudinal links to sibling relationship quality. *Infant and Child Development*. 2011; 20(2):213–226. <http://doi.org/10.1002/icd.690>.
- Kolak AM, Volling BL. Coparenting moderates the association between firstborn children's temperament and problem behavior across the transition to siblinghood. *Journal of Family Psychology*. 2013; 27(3):355–364. <http://doi.org/10.1037/a0032864>. [PubMed: 23750518]
- Koos, EL. Families in trouble. Morningside Heights, NY: King's Crown Press; 1946.
- Kopp CB. Regulation of distress and negative emotions: A developmental view. *Developmental Psychology*. 1989; 25(3):343–354. <http://doi.org/10.1037/0012-1649.25.3.343>.
- Kramer L, Gottman JM. Becoming a sibling: "With a little help from my friends. *Developmental Psychology*. 1992; 28(4):685–699. <http://doi.org/10.1037/0012-1649.28.4.685>.
- Kramer L, Kowal AK. Sibling relationship quality from birth to adolescence: the enduring contributions of friends. *Journal of Family Psychology*. 2005; 19(4):503–511. <http://doi.org/10.1037/0893-3200.19.4.503>. [PubMed: 16402865]
- Kreppner K, Paulsen S, Schuetze Y. Infant and family development: From triads to tetrads. *Human Development*. 1982; 25(6):373–391. <http://doi.org/10.1159/000272821>. [PubMed: 7152503]
- Lagattuta KH. Thinking about the future because of the past: Young children's knowledge about the causes of worry and preventative decisions. *Child Development*. 2007; 78(5):1492–1509. <http://doi.org/10.1111/j.1467-8624.2007.01079.x>. [PubMed: 17883444]
- Lam P, Hiscock H, Wake M. Outcomes of infant sleep problems: A longitudinal study of sleep, behavior, and maternal well-being. *Pediatrics*. 2003; 111(3):e203–e207. <http://doi.org/10.1542/peds.111.3.e203>. [PubMed: 12612272]
- Lane, JD., Song, J-H. International encyclopedia of social and behavioral sciences. 2. Vol. 2. Oxford, England: Elsevier; 2015. Behavioral inhibition and social withdrawal across cultures; p. 456–462.
- Leahy-Warren P, McCarthy G, Corcoran P. First-time mothers: social support, maternal parental self-efficacy and postnatal depression. *Journal of Clinical Nursing*. 2012; 21(3–4):388–397. <http://doi.org/10.1111/j.1365-2702.2011.03701.x>. [PubMed: 21435059]
- Lee CYS, Anderson JR, Horowitz JL, August GJ. Family income and parenting: The role of parental depression and social support. *Family Relations*. 2009; 58(4):417–430. <http://doi.org/10.1111/j.1741-3729.2009.00563.x>.
- Legg MC, Sherick DI, Wadland W. Reaction of preschool children to the birth of a sibling. *Child Psychiatry and Human Development*. 1974; 5(1):3–39. <http://doi.org/10.1007/BF01441311>. [PubMed: 4477058]
- Lemerise EA, Arsenio WF. An integrated model of emotion processes and cognition in social information processing. *Child Development*. 2000; 71(1):107–118. [PubMed: 10836564]
- Letourneau NL, Dennis CL, Benzies K, Duffett-Leger L, Stewart M, Tryphonopoulos PD, ... Watson W. Postpartum depression is a family affair: Addressing the impact on mothers, fathers, and children. *Issues in Mental Health Nursing*. 2012; 33(7):445–457. <http://doi.org/10.3109/01612840.2012.673054>. [PubMed: 22757597]
- Leve LD, Kim HK, Pears KC. Childhood temperament and family environment as predictors of internalizing and externalizing trajectories from ages 5 to 17. *Journal of Abnormal Child Psychology*. 2005; 33(5):505–520. <http://doi.org/10.1007/s10802-005-6734-7>. [PubMed: 16195947]
- Levy DM. Rivalry between children in the same family. *Child Study*. 1934; 11:233–261.
- Levy, DM. Studies in sibling rivalry. New York: The American Orthopsychiatric Association; 1937.
- Lindsey EW, Caldera YM, Tankersley L. Marital conflict and the quality of young children's peer play behavior: The mediating and moderating role of parent-child emotional reciprocity and attachment security. *Journal of Family Psychology*. 2009; 23(2):130–145. <http://doi.org/10.1037/a0014972>. [PubMed: 19364208]
- Little, RJA., Rubin, DB. Statistical analysis with missing data. John Wiley & Sons; 2014.

- Liu, L., Wang, M. Parenting stress and children's problem behavior in China: The mediating role of parental psychological aggression. *Journal of Family Psychology*. 2014. <http://doi.org/10.1037/fam0000047>
- Löhr B, Siegmund R. Ultradian and circadian rhythms of sleep-wake and food-intake behavior during early infancy. *Chronobiology International*. 1999; 16(2):129–148. <http://doi.org/10.3109/07420529909019081>. [PubMed: 10219486]
- Lovejoy MC, Graczyk PA, O'Hare E, Neuman G. Maternal depression and parenting behavior: A meta-analytic review. *Clinical Psychology Review*. 2000; 20(5):561–592. [http://doi.org/10.1016/S0272-7358\(98\)00100-7](http://doi.org/10.1016/S0272-7358(98)00100-7). [PubMed: 10860167]
- Mackenbach JD, Ringoot AP, van der Ende J, Verhulst FC, Jaddoe VWV, Hofman A, ... Tiemeier HW. Exploring the relation of harsh parental discipline with child emotional and behavioral problems by using multiple informants. The Generation R study. *PLOS ONE*. 2014; 9(8):e104793. <http://doi.org/10.1371/journal.pone.0104793>. [PubMed: 25120014]
- Maguire MC, Dunn J. Friendships in early childhood and social understanding. *International Journal of Behavioral Development*. 1997; 21(4):669–686. <http://doi.org/10.1080/016502597384613>.
- Margolin G, Gordis EB, John RS. Coparenting: A link between marital conflict and parenting in two-parent families. *Journal of Family Psychology*. 2001; 15(1):3–21. <http://doi.org/10.1037/0893-3200.15.1.3>. [PubMed: 11322083]
- Mathiesen KS, Sanson A. Dimensions of early childhood behavior problems: Stability and predictors of change from 18 to 30 Months. *Journal of Abnormal Child Psychology*. 2000; 28(1):15–31. <http://doi.org/10.1023/A:1005165916906>. [PubMed: 10772347]
- McArdle, JJ., Ritschard, G. *Contemporary issues in exploratory data mining in the behavioral sciences*. NY: Routledge; 2013.
- McCubbin HI, Patterson JM. The family stress process. *Marriage & Family Review*. 1983; 6(1–2):7–37. http://doi.org/10.1300/J002v06n01_02.
- McElwain NL, Volling BL. Preschool children's interactions with friends and older siblings: relationship specificity and joint contributions to problem behavior. *Journal of Family Psychology*. 2005; 19(4):486–496. <http://doi.org/10.1037/0893-3200.19.4.486>. [PubMed: 16402863]
- McShane, KE., Hastings, PD. The New Friends Vignettes: Measuring parental psychological control that confers risk for anxious adjustment in preschoolers. *International Journal of Behavioral Development*. 2009. <http://doi.org/10.1177/0165025409103874>
- Meijer AM, van den Wittenboer GLH. Contribution of infants' sleep and crying to marital relationship of first-time parent couples in the 1st year after childbirth. *Journal of Family Psychology*. 2007; 21(1):49–57. <http://doi.org/10.1037/0893-3200.21.1.49>. [PubMed: 17371109]
- Melnick SM, Hinshaw SP. Emotion regulation and parenting in AD/HD and comparison boys: Linkages with social behaviors and peer preference. *Journal of Abnormal Child Psychology*. 2000; 28(1):73–86. <http://doi.org/10.1023/A:1005174102794>. [PubMed: 10772351]
- Meltzer LJ, Mindell JA. Relationship between child sleep disturbances and maternal sleep, mood, and parenting stress: A pilot study. *Journal of Family Psychology*. 2007; 21(1):67–73. <http://doi.org/10.1037/0893-3200.21.1.67>. [PubMed: 17371111]
- Mercer RTRN. She's a multip..... She knows the ropes. *Journal of Maternal Child Nursing*. 1979; 4(5):301–304.
- Mesman J, Stoel R, Bakermans-Kranenburg MJ, van IJzendoorn MH, Juffer F, Koot HM, Alink LRA. Predicting growth curves of early childhood externalizing problems: Differential susceptibility of children with difficult temperament. *Journal of Abnormal Child Psychology*. 2009; 37(5):625–636. <http://doi.org/10.1007/s10802-009-9298-0>. [PubMed: 19184403]
- Mezulis AH, Hyde JS, Clark R. Father involvement moderates the effect of maternal depression during a child's infancy on child behavior problems in kindergarten. *Journal of Family Psychology*. 2004; 18(4):575–588. <http://doi.org/10.1037/0893-3200.18.4.575>. [PubMed: 15598163]
- Mikami AY, Piffner LJ. Sibling relationships among children with ADHD. *Journal of Attention Disorders*. 2008; 11(4):482–492. <http://doi.org/10.1177/1087054706295670>. [PubMed: 17494830]

- Mindell JA, Sadeh A, Kohyama J, How TH. Parental behaviors and sleep outcomes in infants and toddlers: A cross-cultural comparison. *Sleep Medicine*. 2010; 11(4):393–399. <http://doi.org/10.1016/j.sleep.2009.11.011>. [PubMed: 20223706]
- Miner JL, Clarke-Stewart KA. Trajectories of externalizing behavior from age 2 to age 9: Relations with gender, temperament, ethnicity, parenting, and rater. *Developmental Psychology*. 2008; 44(3):771–786. <http://doi.org/10.1037/0012-1649.44.3.771>. [PubMed: 18473643]
- Moffitt TE. Juvenile delinquency and attention deficit disorder: Boys' developmental trajectories from age 3 to age 15. *Child Development*. 1990; 61(3):893–910. <http://doi.org/10.1111/j.1467-8624.1990.tb02830.x>. [PubMed: 2364762]
- Morris N, Keane S, Calkins S, Shanahan L, O'Brien M. Differential components of reactivity and attentional control predicting externalizing behavior. *Journal of Applied Developmental Psychology*. 2014; 35(3):121–127. <http://doi.org/10.1016/j.appdev.2014.02.002>. [PubMed: 27076694]
- Moss E, Bureau JF, Cyr C, Dubois-Comtois K. Is the maternal Q-Set a valid measure of preschool child attachment behavior? *International Journal of Behavioral Development*. 2006; 30(6):488–497. <http://doi.org/10.1177/0165025406071908>.
- Mulvaney S, Lambert EW, Garber J, Walker LS. Trajectories of symptoms and impairment for pediatric patients with functional abdominal pain: A 5-year longitudinal study. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2006; 45(6):737–744. <http://doi.org/10.1097/10.chi.0000214192.57993.06>. [PubMed: 16721324]
- Muris P, Merckelbach H, Gadget B, Moulart V. Fears, worries, and scary dreams in 4- to 12-year-old children: Their content, developmental pattern, and origins. *Journal of Clinical Child Psychology*. 2000; 29(1):43–52. http://doi.org/10.1207/S15374424jccp2901_5. [PubMed: 10693031]
- Muris P, Merckelbach H, Meesters C, van den Brand K. Cognitive development and worry in normal children. *Cognitive Therapy and Research*. 2002; 26(6):775–787. <http://doi.org/10.1023/A:1021241517274>.
- Muthén, B. Latent variable analysis: Growth Mixture Modeling and related techniques for longitudinal data. In: Kaplan, D., editor. *The Sage handbook of quantitative methodology for the social sciences*. Thousand Oaks, CA: Sage Publications, Inc; 2004. p. 345–68.
- Muthén B, Muthén LK. Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research*. 2000; 24(6):882–891. <http://doi.org/10.1111/j.1530-0277.2000.tb02070.x>.
- Muthén, LK., Muthén, BO. *Mplus User's Guide*. 7. Los Angeles, Calif: 1998–2012.
- Nadelman, L., Begun, A. The effect of the newborn on the older sibling: Mothers' questionnaires. In: Lamb, ME., Sutton-Smith, B., editors. *Sibling relationships: Their nature and significance across the lifespan*. Hillsdale, NJ: Erlbaum; 1982. p. 13–38.
- Nagin DS. Analyzing developmental trajectories: A semiparametric, group-based approach. *Psychological Methods*. 1999; 4(2):139–157. <http://doi.org/10.1037/1082-989X.4.2.139>.
- Nylund KL, Asparouhov T, Muthén BO. Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling: A Multidisciplinary Journal*. 2007; 14(4):535–569. <http://doi.org/10.1080/10705510701575396>.
- Oh W, Rubin KH, Bowker JC, Booth-LaForce C, Rose-Krasnor L, Laursen B. Trajectories of social withdrawal from middle childhood to early adolescence. *Journal of Abnormal Child Psychology*. 2008; 36(4):553–566. <http://doi.org/10.1007/s10802-007-9199-z>. [PubMed: 18193479]
- Oh W, Volling BL, Gonzalez R. Trajectories of children's social interactions with their infant sibling in the first year: A multidimensional approach. *Journal of Family Psychology*. 2015; 29(1):119–129. <http://doi.org/10.1037/fam0000051>. [PubMed: 25664367]
- Owens EB, Shaw DS. Predicting growth curves of externalizing behavior across the preschool years. *Journal of Abnormal Child Psychology*. 2003; 31(6):575–590. <http://doi.org/10.1023/A:1026254005632>. [PubMed: 14658739]
- Owens-Stively JMD, Frank N, Smith AMS, Hagino OMD, Spirito A, Arrigan MBS, Alario AJMD. Child temperament, parenting discipline style, and daytime behavior in childhood sleep disorders. *Journal of Developmental and Behavioral Pediatrics*. 1997; 18(5):314–321. [PubMed: 9349974]

- Patterson GR. Performance models for antisocial boys. *American Psychologist*. 1986; 41(4):432–444. <http://doi.org/10.1037/0003-066X.41.4.432>. [PubMed: 3717751]
- Paulus FW, Backes A, Sander CS, Weber M, von Gontard A. Anxiety disorders and behavioral inhibition in preschool children: A population-based study. *Child Psychiatry & Human Development*. 2015; 46(1):150–157. <http://doi.org/10.1007/s10578-014-0460-8>. [PubMed: 24659133]
- Perlman M, Ross HS. The benefits of parent intervention in children's disputes: An Examination of concurrent changes in children's fighting styles. *Child Development*. 1997; 68(4):690–700. <http://doi.org/10.1111/j.1467-8624.1997.tb04230.x>.
- Peterson JL, Zill N. Marital disruption, parent-child relationships, and behavior problems in children. *Journal of Marriage and Family*. 1986; 48(2):295–307. <http://doi.org/10.2307/352397>.
- Petras, H., Masyn, K. General growth mixture analysis with antecedents and consequences of change. In: Piquero, AR., Weisburd, D., editors. *Handbook of Quantitative Criminology*. Springer; New York: 2010. p. 69–100.
- Petty TA. The tragedy of humpty dumpty. *Psychoanalytic Study of the Child*. 1953; 8:404–412.
- Pons F, Harris PL, de Rosnay M. Emotion comprehension between 3 and 11 years: Developmental periods and hierarchical organization. *European Journal of Developmental Psychology*. 2004; 1(2):127–152. <http://doi.org/10.1080/17405620344000022>.
- Quine L. Severity of sleep problems in children with severe learning difficulties: Description and correlates. *Journal of Community & Applied Social Psychology*. 1992; 2(4):247–268. <http://doi.org/10.1002/casp.2450020404>.
- Renk K, Roddenberry A, Oliveros A, Sieger K. The relationship of maternal characteristics and perceptions of children's emotional and behavioral problems. *Child and Family Behavior Therapy*. 2007; 29(1):37–57. http://doi.org/10.1300/J019v29n01_03.
- Richardson P. Women's perceptions of change in relationships shared with children during pregnancy. *Maternal-Child Nursing Journal*. 1983; 12(2):75–88. [PubMed: 6554427]
- Robertson J, Robertson J. Young children in brief separation: A fresh look. *The Psychoanalytic Study of the Child*. 1971; 26:264–315. [PubMed: 5163230]
- Rocha EM, Prkachin KM. Temperament and pain reactivity predict health behavior seven years later. *Journal of Pediatric Psychology*. 2007; 32(4):393–399. <http://doi.org/10.1093/jpepsy/jsl036>. [PubMed: 17038414]
- Rothbart MK, Ahadi SA, Hershey KL, Fisher P. Investigations of temperament at three to seven years: The Children's Behavior Questionnaire. *Child Development*. 2001; 72(5):1394–1408. <http://doi.org/10.1111/1467-8624.00355>. [PubMed: 11699677]
- Rothbart, MK., Bates, JE. Temperament. In: Eisenberg, N., Eisenberg, N., editors. *Handbook of child psychology*, 5th ed.: Vol 3. Social, emotional, and personality development. Hoboken, NJ, US: John Wiley & Sons Inc; 1998. p. 105–176.
- Rothbart, MK., Bates, JE. Temperament in children's development. In: Damon, W., Lerner, R., editors. *Handbook of child psychology: Vol. 3. Social, emotional, and personality development*. 6. Vol. 3. New York, N.Y., U.S.A: Wiley; 2006. p. 99–166.
- Rothbart MK, Sheese BE, Rueda MR, Posner MI. Developing mechanisms of self-regulation in early life. *Emotion Review*. 2011; 3(2):207–213. <http://doi.org/10.1177/1754073910387943>. [PubMed: 21892360]
- Rubin KH, Burgess KB, Hastings PD. Stability and social-behavioral consequences of toddlers' inhibited temperament and parenting behaviors. *Child Development*. 2002; 73(2):483–495. [PubMed: 11949904]
- Rubin, KH., Burgess, KB., Kennedy, AE., Stewart, SL. Social withdrawal in childhood. In: Mash, EJ., Barkley, RA., editors. *Child psychopathology*. 2. New York, NY, US: Guilford Press; 2003. p. 372–406.
- Rubin KH, Chen X, McDougall P, Bowker A, McKinnon J. The Waterloo Longitudinal Project: Predicting internalizing and externalizing problems in adolescence. *Development and Psychopathology*. 1995; 7(04):751–764. <http://doi.org/10.1017/S0954579400006829>.
- Rubin KH, Coplan RJ, Bowker JC. Social withdrawal in childhood. *Annual Review of Psychology*. 2009; 60(1):141–171. <http://doi.org/10.1146/annurev.psych.60.110707.163642>.

- Rubin KH, Hastings PD, Stewart SL, Henderson HA, Chen X. The consistency and concomitants of Inhibition: Some of the children, all of the time. *Child Development*. 1997; 68(3):467–483. <http://doi.org/10.1111/j.1467-8624.1997.tb01952.x>. [PubMed: 9249961]
- Ruff, HA., Rothbart, MK. Attention in early development: Themes and variations. New York, NY, US: Oxford University Press; 1996. Retrieved from <http://proxy.lib.umich.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1996-98232-000&site=ehost-live&scope=site>
- Rushton PJ, Brainerd CJ, Pressley M. Behavioral development and construct validity: The principle of aggregation. *Psychological Bulletin*. 1983; 94(1):18–38. <http://doi.org/10.1037/0033-2909.94.1.18>.
- Rutter M. Transitions and turning points in developmental psychopathology: As applied to the age span between childhood and mid-adulthood. *International Journal of Behavioral Development*. 1996; 19(3):603–626. <http://doi.org/10.1177/016502549601900309>.
- Rydell AM, Bohlin G, Thorell LB. Representations of attachment to parents and shyness as predictors of children's relationships with teachers and peer competence in preschool. *Attachment & Human Development*. 2005; 7(2):187–204. <http://doi.org/10.1080/14616730500134282>. [PubMed: 16096193]
- Sadeh A, Lavie P, Scher A. Sleep and temperament: Maternal perceptions of temperament of sleep-disturbed toddlers. *Early Education and Development*. 1994; 5(4):311–322. http://doi.org/10.1207/s15566935eed0504_6.
- Sadeh A, Mindell JA, Luedtke K, Wiegand B. Sleep and sleep ecology in the first 3 years: a web-based study. *Journal of Sleep Research*. 2009; 18(1):60–73. <http://doi.org/10.1111/j.1365-2869.2008.00699.x>. [PubMed: 19021850]
- Sadeh A, Raviv A, Gruber R. Sleep patterns and sleep disruptions in school-age children. *Developmental Psychology*. 2000; 36(3):291–301. <http://doi.org/10.1037/0012-1649.36.3.291>. [PubMed: 10830974]
- Sameroff AJ. Developmental systems and psychopathology. *Development and Psychopathology*. 2000; 12:297–312. [PubMed: 11014740]
- Sanders MR, Woolley ML. The relationship between maternal self-efficacy and parenting practices: Implications for parent training. *Child: Care, Health and Development*. 2005; 31(1):65–73. <http://doi.org/10.1111/j.1365-2214.2005.00487.x>.
- Schacht PM, Cummings EM, Davies PT. Fathering in family context and child adjustment: A longitudinal analysis. *Journal of Family Psychology*. 2009; 23(6):790–797. <http://doi.org/10.1037/a0016741>. [PubMed: 20001137]
- Schaefer C. Night waking and temperament in early childhood. *Psychological Reports*. 1990; 67(1):192–194. [PubMed: 2236396]
- Schafer JL, Graham JW. Missing data: Our view of the state of the art. *Psychological Methods*. 2002; 7(2):147–177. <http://doi.org/10.1037/1082-989X.7.2.147>. [PubMed: 12090408]
- Scher A, Asher R. Is attachment security related to sleep–wake regulation?: Mothers' reports and objective sleep recordings. *Infant Behavior and Development*. 2004; 27(3):288–302. <http://doi.org/10.1016/j.infbeh.2003.12.002>.
- Schoppe SJ, Mangelsdorf SC, Frosch CA. Coparenting, family process, and family structure: Implications for preschoolers' externalizing behavior problems. *Journal of Family Psychology*. 2001; 15(3):526–545. <http://doi.org/10.1037/0893-3200.15.3.526>. [PubMed: 11584800]
- Schoppe-Sullivan SJ, Mangelsdorf SC, Frosch CA, McHale JL. Associations between coparenting and marital behavior from infancy to the preschool years. *Journal of Family Psychology*. 2004; 18(1):194–207. <http://doi.org/10.1037/0893-3200.18.1.194>. [PubMed: 14992621]
- Schoppe-Sullivan SJ, Weldon AH, Claire Cook J, Davis EF, Buckley CK. Coparenting behavior moderates longitudinal relations between effortful control and preschool children's externalizing behavior. *Journal of Child Psychology and Psychiatry*. 2009; 50(6):698–706. <http://doi.org/10.1111/j.1469-7610.2008.02009.x>. [PubMed: 19207627]
- Schwarz G. Estimating the dimension of a model. *The Annals of Statistics*. 1978; 6(2):461–464. <http://doi.org/10.1214/aos/1176344136>.

- Sclove SL. Application of model-selection criteria to some problems in multivariate analysis. *Psychometrika*. 1987; 52(3):333–343. <http://doi.org/10.1007/BF02294360>.
- Seidman E, French SE. Developmental trajectories and ecological transitions: A two-step procedure to aid in the choice of prevention and promotion interventions. *Development and Psychopathology*. 2004; 16:1141–1159. <http://doi.org/10.1017/S0954579404040179>. [PubMed: 15704831]
- Seifer R, Sameroff AJ, Dickstein S, Hayden LC. Parental psychopathology and sleep variation in children. *Child and Adolescent Psychiatric Clinics of North America*. 1996; 5(3):715–727.
- Shapiro AF, Nahm EY, Gottman JM, Content K. Bringing baby home together: Examining the impact of a couple-focused intervention on the dynamics within family play. *American Journal of Orthopsychiatry*. 2011; 81(3):337–350. <http://doi.org/10.1111/j.1939-0025.2011.01102.x>. [PubMed: 21729014]
- Shaw DS, Keenan K, Vondra JI. Developmental precursors of externalizing behavior: Ages 1 to 3. *Developmental Psychology*. 1994; 30(3):355–364. <http://doi.org/10.1037/0012-1649.30.3.355>.
- Shaw DS, Keenan K, Vondra JI, Delliquardi E, Giovannelli J. Antecedents of preschool children's internalizing problems: A longitudinal study of low-income families. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1997; 36(12):1760–1767. <http://doi.org/10.1097/00004583-199712000-00025>. [PubMed: 9401338]
- Shaw DS, Owens EB, Giovannelli J, Winslow EB. Infant and toddler pathways leading to early externalizing disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2001; 40(1):36–43. <http://doi.org/10.1097/00004583-200101000-00014>. [PubMed: 11195559]
- Song JH, Volling BL. Coparenting and children's temperament predict firstborns' cooperation in the care of an infant sibling. *Journal of Family Psychology*. 2015; 29(1):130–135. <http://doi.org/10.1037/fam0000052>. [PubMed: 25581467]
- Sroufe LA, Rutter M. The domain of developmental psychopathology. *Child Development*. 1984; 55(1):17–29. <http://doi.org/10.2307/1129832>. [PubMed: 6705619]
- Staples AD, Bates JE, Petersen IT. IX. Bedtime routines in early childhood: Prevalence, consistency, and associations with nighttime sleep. *Monographs of the Society for Research in Child Development*. 2015; 80(1):141–159. <http://doi.org/10.1111/mono.12149>. [PubMed: 25704740]
- Steinhausen HC. Developmental psychopathology in adolescence: Findings from a Swiss study – the NAPE Lecture 2005. *Acta Psychiatrica Scandinavica*. 2006; 113(1):6–12. <http://doi.org/10.1111/j.1600-0447.2005.00706.x>. [PubMed: 16390363]
- Stevenson-Hinde J, Shouldice A, Chicot R. Maternal anxiety, behavioral inhibition, and attachment. *Attachment & Human Development*. 2011; 13(3):199–215. <http://doi.org/10.1080/14616734.2011.562409>. [PubMed: 21506027]
- Stevenson MM, Fabricius WV, Cookston JT, Parke RD, Coltrane S, Braver SL, Saenz DS. Marital problems, maternal gatekeeping attitudes, and father–child relationships in adolescence. *Developmental Psychology*. 2014; 50(4):1208–1218. <http://doi.org/10.1037/a0035327>. [PubMed: 24364832]
- Stewart, RB. *The second child: Family transition and adjustment*. Thousand Oaks, CA, US: Sage Publications, Inc; 1990.
- Stewart RB, Mobley LA, van Tuyl SS, Salvador MA. The firstborn's adjustment to the birth of a sibling: A longitudinal assessment. *Child Development*. 1987; 58(2):341–355. <http://doi.org/10.2307/1130511>. [PubMed: 3829782]
- Stillwell R, Dunn J. Continuities in sibling relationships: Patterns of aggression and friendliness. *Journal of Child Psychology and Psychiatry*. 1985; 26(4):627–637. <http://doi.org/10.1111/j.1469-7610.1985.tb01645.x>. [PubMed: 4019620]
- Strobl C, Malley J, Tutz G. An introduction to recursive partitioning: Rationale, application, and characteristics of classification and regression trees, bagging, and random forests. *Psychological Methods*. 2009; 14(4):323–348. <http://doi.org/10.1037/a0016973>. [PubMed: 19968396]
- Stuart S, Noyes R Jr. Attachment and interpersonal communication in somatization. *Psychosomatics*. 1999; 40(1):34–43. [http://doi.org/10.1016/S0033-3182\(99\)71269-7](http://doi.org/10.1016/S0033-3182(99)71269-7). [PubMed: 9989119]
- Tarabulsky GM, Provost MA, Larose S, Moss E, Lemelin JP, Moran G, ... Pederson DR. Similarities and differences in mothers' and observers' ratings of infant security on the Attachment Q-Sort.

- Infant Behavior and Development. 2008; 31(1):10–22. <http://doi.org/10.1016/j.infbeh.2007.05.002>. [PubMed: 17624438]
- Terre L, Ghiselli W. A developmental perspective on family risk factors in somatization. *Journal of Psychosomatic Research*. 1997; 42(2):197–208. [http://doi.org/10.1016/S0022-3999\(96\)00237-1](http://doi.org/10.1016/S0022-3999(96)00237-1). [PubMed: 9076647]
- Teti DM, McGourty S. Using mothers versus trained observers in assessing children's secure base behavior: Theoretical and methodological considerations. *Child Development*. 1996; 67(2):597–605. <http://doi.org/10.1111/j.1467-8624.1996.tb01753.x>. [PubMed: 8625730]
- Teti DM, Sakin JW, Kucera E, Corns KM, Eiden RD. And baby makes four: Predictors of attachment security among preschool-age firstborns during the transition to siblinghood. *Child Development*. 1996; 67(2):579–596. [PubMed: 8625729]
- Teubert D, Pinquart M. The association between coparenting and child adjustment: A meta-analysis. *Parenting*. 2010; 10(4):286–307. <http://doi.org/10.1080/15295192.2010.492040>.
- Tharner A, Luijk MPCM, van IJzendoorn MH, Bakermans-Kranenburg MJ, Jaddoe VWV, Hofman A, ... Tiemeier H. Infant attachment, parenting stress, and child emotional and behavioral problems at age 3 years. *Parenting*. 2012; 12(4):261–281. <http://doi.org/10.1080/15295192.2012.709150>.
- Thomason E, Volling BL, Flynn HA, McDonough SC, Marcus SM, Lopez JF, Vazquez DM. Parenting stress and depressive symptoms in postpartum mothers: Bidirectional or unidirectional effects? *Infant Behavior and Development*. 2014; 37(3):406–415. <http://doi.org/10.1016/j.infbeh.2014.05.009>. [PubMed: 24956500]
- Thompson, RA., Meyer, S. Socialization of emotion regulation in the family. In: Gross, JJ., Gross, JJ., editors. *Handbook of emotion regulation*. New York, NY, US: Guilford Press; 2007. p. 249–268.
- Tikotzky L, Sadeh A. Maternal sleep-related cognitions and infant sleep: A longitudinal study from pregnancy through the 1st Year. *Child Development*. 2009; 80(3):860–874. <http://doi.org/10.1111/j.1467-8624.2009.01302.x>. [PubMed: 19489908]
- Tikotzky L, Sadeh A, Volkovich E, Manber R, Meiri G, Shahar G. Vii. Infant sleep development from 3 to 6 months postpartum: Links with maternal sleep and paternal involvement. *Monographs of the Society for Research in Child Development*. 2015; 80(1):107–124. <http://doi.org/10.1111/mono.12147>. [PubMed: 25704738]
- Touchette É, Petit D, Paquet J, Boivin M, Japel C, Tremblay RE, Montplaisir JY. Factors associated with fragmented sleep at night across early childhood. *Archives of Pediatrics & Adolescent Medicine*. 2005; 159(3):242–249. [PubMed: 15753267]
- Towe-Goodman NR, Teti DM. Power assertive discipline, maternal emotional involvement, and child adjustment. *Journal of Family Psychology*. 2008; 22(4):648–651. <http://doi.org/10.1037/a0012661>. [PubMed: 18729679]
- Trause MA. Birth in the hospital: The effect on the sibling. *Birth*. 1978; 5(4):207–210. <http://doi.org/10.1111/j.1523-536X.1978.tb01281.x>.
- Trause MA, Voos D, Rudd C, Klaus M, Kennell J, Boslett M. Separation for childbirth: The effect on the sibling. *Child Psychiatry and Human Development*. 1981; 12(1):32–39. <http://doi.org/10.1007/BF00706671>. [PubMed: 7273911]
- Tremblay RE, Japel C, Perusse D, McDuff P, Boivin M, Zoccolillo M, Montplaisir J. The search for the age of “onset” of physical aggression: Rousseau and Bandura revisited. *Criminal Behaviour and Mental Health*. 1999; 9(1):8–23. <http://doi.org/10.1002/cbm.288>.
- Tremblay RE, Nagin DS, Séguin JR, Zoccolillo M, Zelazo PD, Boivin M, ... Japel C. Physical aggression during early childhood: Trajectories and predictors. *Pediatrics*. 2004; 114(1):e43–e50. <http://doi.org/10.1542/peds.114.1.e43>. [PubMed: 15231972]
- van Aken C, Junger M, Verhoeven M, van Aken MAG, Dekovi M. The longitudinal relations between parenting and toddlers' attention problems and aggressive behaviors. *Infant Behavior and Development*. 2008; 31(3):432–446. <http://doi.org/10.1016/j.infbeh.2007.12.016>. [PubMed: 18279968]
- Vasey MW, Crnic KA, Carter WG. Worry in childhood: A developmental perspective. *Cognitive Therapy and Research*. 1994; 18(6):529–549. <http://doi.org/10.1007/BF02355667>.
- Vinden PG. Children's understanding of mind and emotion: A multi-culture study. *Cognition & Emotion*. 1999; 13(1):19–48. <http://doi.org/10.1080/026999399379357>.

- Volling BL. The transition to siblinghood: A developmental ecological systems perspective and directions for future research. *Journal of Family Psychology*. 2005; 19(4):542–549. <http://doi.org/10.1037/0893-3200.19.4.542>. [PubMed: 16402869]
- Volling, BL. Family transitions following the birth of a sibling: An empirical review of changes in the firstborn's adjustment. *Psychological Bulletin*. 2012. <http://doi.org/10.1037/a0026921>
- Volling BL, Elins JL. Family relationships and children's emotional adjustment as correlates of maternal and paternal differential treatment: A replication with toddler and preschool Siblings. *Child Development*. 1998; 69(6):1640–1656. <http://doi.org/10.2307/1132137>. [PubMed: 9914644]
- Volling BL, McElwain NL, Miller AL. Emotion regulation in context: The jealousy complex between young siblings and its relations with child and family characteristics. *Child Development*. 2002; 73(2):581–600. [PubMed: 11949910]
- Volling, BL., Oh, W., Gonzalez, R. Attachments to mother and father predict sibling relationship quality following the birth of a sibling. In: Mesman, J., Chair, editor. *Observing mothers and fathers with their young children: Unique patterns, predictors, and consequences presented at the International Society for the Study of Behavioral Development*; Edmonton, Canada. 2012 Jul.
- Volling BL, Yu T, Gonzalez R, Kennedy DE, Rosenberg L, Oh W. Children's responses to mother–infant and father–infant interaction with a baby sibling: Jealousy or joy? *Journal of Family Psychology*. 2014; 28(5):634–644. <http://doi.org/10.1037/a0037811>. [PubMed: 25150371]
- Walcott CM, Landau S. The relations between disinhibition and emotion regulation in boys with attention deficit hyperactivity disorder. *Journal of Clinical Child & Adolescent Psychology*. 2004; 33(4):772–782. http://doi.org/10.1207/s15374424jccp3304_12. [PubMed: 15498744]
- Walker LS, Garber J, Greene JW. Psychosocial correlates of recurrent childhood pain: A comparison of pediatric patients with recurrent abdominal pain, organic illness, and psychiatric disorders. *Journal of Abnormal Psychology*. 1993; 102(2):248–258. <http://doi.org/10.1037/0021-843X.102.2.248>. [PubMed: 8315137]
- Walker LS, Greene JW. Children with recurrent abdominal pain and their parents: More somatic complaints, anxiety, and depression than other patient families? *Journal of Pediatric Psychology*. 1989; 14(2):231–243. <http://doi.org/10.1093/jpepsy/14.2.231>. [PubMed: 2754574]
- Warren SL, Simmens SJ. Predicting toddler anxiety/depressive symptoms: Effects of caregiver sensitivity on temperamentally vulnerable children. *Infant Mental Health Journal*. 2005; 26(1): 40–55. <http://doi.org/10.1002/imhj.20034>. [PubMed: 28682514]
- Waters E, Deane KE. Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. *Monographs of the Society for Research in Child Development*. 1985; 50(1/2):41–65. <http://doi.org/10.2307/3333826>.
- Weinraub M, Bender RH, Friedman SL, Susman EJ, Knoke B, Bradley R, ... Williams J. Patterns of developmental change in infants' nighttime sleep awakenings from 6 through 36 months of age. *Developmental Psychology*. 2012; 48(6):1511–1528. <http://doi.org/10.1037/a0027680>. [PubMed: 22448981]
- Wellman HM, Liu D. Scaling of theory-of-mind tasks. *Child Development*. 2004; 75(2):523–541. <http://doi.org/10.1111/j.1467-8624.2004.00691.x>. [PubMed: 15056204]
- Wellman HM, Woolley JD. From simple desires to ordinary beliefs: The early development of everyday psychology. *Cognition*. 1990; 35(3):245–275. [http://doi.org/10.1016/0010-0277\(90\)90024-E](http://doi.org/10.1016/0010-0277(90)90024-E). [PubMed: 2364653]
- Whalen CK, Henker B. The social profile of attention deficit hyperactivity disorder: Five fundamental facets. *Child and Adolescent Psychiatric Clinics of North America*. 1992; 1:395–410.
- Wheeler J, Carlson CL. The social functioning of children with ADD with hyperactivity and ADD without hyperactivity: A comparison of their peer relations and social deficits. *Journal of Emotional and Behavioral Disorders*. 1994; 2(1):2–12. <http://doi.org/10.1177/106342669400200101>.
- Williams LR, Degnan KA, Perez-Edgar KE, Henderson HA, Rubin KH, Pine DS, ... Fox NA. Impact of behavioral inhibition and parenting style on internalizing and externalizing problems from

early childhood through adolescence. *Journal of Abnormal Child Psychology*. 2009; 37(8):1063–1075. <http://doi.org/10.1007/s10802-009-9331-3>. [PubMed: 19521761]

Wilson S, Durbin CE. Effects of paternal depression on fathers' parenting behaviors: A meta-analytic review. *Clinical Psychology Review*. 2010; 30(2):167–180. <http://doi.org/10.1016/j.cpr.2009.10.007>. [PubMed: 19926376]

Winnicott, DW. *The child, the family and the outside world*. Harmondsworth, Middlesex, England: Penguin Books; 1964.

Winnicott, DW. *The piggle: An account of the psychoanalytic treatment of a little girl*. London: The Hogarth Press and the Institute of Psycho-Analysis; 1978.

Wolff N, Darlington AS, Hunfeld J, Verhulst F, Jaddoe V, Hofman A, ... Tiemeier H. Determinants of somatic complaints in 18-month-old children: The Generation R Study. *Journal of Pediatric Psychology*. 2010; 35(3):306–316. <http://doi.org/10.1093/jpepsy/jsp058>. [PubMed: 19737841]

Wolff NJ, Darlington ASE, MA, Verhulst FC, VW, Moll HA, ... Tiemeier H. The association of parent behaviors, chronic pain, and psychological problems with venipuncture distress in infants: The Generation R study. *Health Psychology*. 2009; 28(5):605–613. <http://doi.org/10.1037/a0015202>. [PubMed: 19751087]

Youngblade LM, Dunn J. Individual differences in young children's pretend play with mother and sibling: Links to relationships and understanding of other people's feelings and beliefs. *Child Development*. 1995; 66(5):1472–1492. <http://doi.org/10.1111/j.1467-8624.1995.tb00946.x>. [PubMed: 7555225]

Zemp M, Bodenmann G, Cummings EM. The role of skin conductance level reactivity in the impact of children's exposure to interparental conflict on their attention performance. *Journal of Experimental Child Psychology*. 2014; 118:1–12. <http://doi.org/10.1016/j.jecp.2013.09.007>. [PubMed: 24184777]

Zuckerman B, Stevenson J, Bailey V. Sleep problems in early childhood: Continuities, predictive factors, and behavioral correlates. *Pediatrics*. 1987; 80(5):664–671. [PubMed: 3670967]

FIGURE 1.

Theorized trajectory patterns of change reflecting adjustment and adaptation, stability, and linear increase.

Figure 2.
Theorized curvilinear trajectory patterns reflecting sudden persistent change, delayed impact, and growth and maturity.

Figure 3.
Trajectory classes for aggressive behavior from Growth Mixture Model ($n=230$).

Figure 4.

Spaghetti plots of individual trajectories for each of the five aggression classes showing the mean (lowest line), borderline-clinical (92.5%; middle line), and clinical (97.5%; highest line) levels.

Growth Mixture Model Results for Aggressive Behavior: Parameter Estimates and Standard Errors for Fixed Effects

Table 4

Classes	Low-increasing	Low-AAR	Mid-stable	Mid-AAR-decreasing	High-decreasing
Parameters	n = 92 (40%)	n = 68 (29.6%)	n = 44 (19.1%)	n = 18 (7.8%)	n = 8 (3.5%)
Intercept	5.222 *** (.483)	9.363 *** (.854)	12.565 *** (.786)	13.385 *** (.813)	19.376 *** (1.142)
Linear slope	.254 ** (.081)	-.143 (.139)	-.109 (.195)	-.431 * (.177)	-.736 ** (.251)
AAR	.060 (.105)	.710 *** (.215)	-.241 (.239)	1.831 *** (.224)	-.044 (.312)

Note. Standard errors in parentheses. AAR = Adjustment and Adaptation Response. The random effect (variance) of intercept est. = 2.949, $SE = 1.386$, $p = .033$; the random effect of linear slope est. = .037, $SE = .048$, $p = ns$; the random effect of the AAR contrast was constrained to be 0.

* $p < .05$,

** $p < .01$,

*** $p < .001$.

Table 5

Results of Multinomial Logistic Regression Analysis Examining Class Differences for Aggressive Behavior with the Low-Increasing Class as the Reference Class

Predictor	Low-increasing vs.	b	SE	z	P	OR
Child Negative Emotionality	Low-AAR	1.07	0.34	3.14	0.002	2.92
	Mid-stable	2.56	0.50	5.13	<0.001	12.97
	Mid-AAR	1.54	0.56	2.77	0.006	4.66
Undermining Coparenting	High-decreasing	6.88	2.15	3.21	0.001	976.31
	Low-AAR	0.11	0.10	1.05	n.s.	1.11
	Mid-stable	-0.19	0.15	-1.25	n.s.	0.83
Attachment Security to Mother	Mid-AAR	-0.32	0.19	-1.67	n.s.	0.72
	High-decreasing	1.14	0.71	1.60	n.s.	3.13
	Low-AAR	-1.38	0.99	-1.40	n.s.	0.25
Fathers' Parental Efficacy ^a	Mid-stable	-1.58	1.24	-1.27	n.s.	0.21
	Mid-AAR	-2.17	1.57	-1.39	n.s.	0.11
	High-decreasing	-23.24	10.2	-2.43	0.023	0.00
Fathers' Parental Efficacy ^a	Low-AAR	0.75	0.49	1.52	n.s.	2.12
	Mid-stable	2.49	0.70	3.59	<0.001	12.11
	Mid-AAR	0.65	0.79	0.83	n.s.	1.91
Fathers' Parental Efficacy ^a	High-decreasing	7.09	2.92	2.43	0.015	>1000

Note: n.s. = nonsignificant. OR= Odds Ratio.

^a higher scores indicate lower sense of efficacy as a parent. AAR = Adjustment and Adaptation Response