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The Maternal Description of Child (MDoC): A New Audiotaped Measure of Maternal Affect

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Abstract

We report on a new measure of maternal affect from an ongoing multi-site birth cohort study with primarily low-income families, the Fragile Families and Child Wellbeing Study. At child age of 5 years, mothers were asked to describe their child in a short, semi-structured home interview. One innovation of this measure – called the Maternal Description of Child (MDoC) – is that it captured maternal affect via audiotape rather than videotape. Based on mothers' talk about their child, coders scored mothers on Positive Affect, Negative Affect, and Detachment. Evidence is presented to support the convergent and predictive validity of these scales. Given that objective measures of parenting are generally preferable to self-reported measures, further research should determine whether the MDoC can be successfully administered by phone. If it can, the MDoC would allow large-scale phone surveys to measure maternal affect for the first time.

Keywords

maternal affect; mother–child relations; Fragile Families and Child Wellbeing Study; audiotapes

INTRODUCTION

Observed measures of parenting are less susceptible than self-reported measures to social desirability bias, and they more strongly predict child outcomes (Zaslow et al., 2006). However, they require in-person contact (and, typically, videotaping) and depend on coding schemes that must be applied reliably by a large number of coders. The time and cost associated with this method preclude its use by most national large-scale studies of families and households. Yet only large-scale studies provide the sample sizes needed to answer questions about parenting in subgroups defined by race/ethnicity, income, family structure, and immigration status.

The present study reports on a new measure of maternal affect, conceptualized here as the emotional tone of parenting (Denham et al., 2000). This measure – the Maternal Description of Child (MDoC) – was implemented in an ongoing study of a multi-site birth cohort of primarily low-income families, the Fragile Families and Child Wellbeing Study (FFCWS).

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Although the MDoC was scored by researchers rather than self-reported, it was captured through audiotape rather than videotape. Specifically, mothers were asked to describe their child in a semi-structured home interview that lasted only 5 min. Audiotapes were later coded to yield scales of maternal Positive Affect, Negative Affect, and Detachment.

As Pasalich and colleagues (2011) noted, the affect expressed in parents' spontaneous narratives about their child should reflect their internal representation of their relationship with that child, which, in turn, should shape their interpretations of and interactions with their child. Several studies coding audiotapes of mothers' short descriptions of their child have found that scales of mothers' positive and negative affect correlate with parenting scales derived from videotaped parent-child interactions (Daley, Sonuga-Barke, & Thompson, 2003; Narayan, Herbers, Plowman, Gerwitz, & Masten, 2012; Pasalich, Dadds, Hawes, & Brennan, 2011) and predict subsequent child conduct problems (Bowes, Maughan, Caspi, Moffitt, & Arseneault, 2010; Caspi et al., 2004). However, most of these studies were based on non-US (Bowes et al., 2010; Caspi et al., 2004; Daley et al., 2003; Pasalich et al., 2011), predominantly White (Baker et al., 2000), or small (Kaugars, Moody, Dennis, & Klinnert, 2007; Narayan et al., 2012) samples, and data were cross sectional. The FFCWS now provides the first opportunity in the USA to study audiotaped maternal affect in the context of a national, longitudinal dataset. This sample is appealing because of its diversity in race/ethnicity and family structure (Reichman, Teitler, Garfinkel, & McLanahan, 2001).

The present study reports on the collection and preliminary analysis of the MDoC affect scales. We assess their convergent validity by testing the extent to which their correlations with earlier and concurrently measured constructs mirror those from past studies of maternal affect based on videotaped observations. We also assess the predictive validity of our scales by testing whether they later predict child behaviour in the same way that affect scales from videotaped observations have in past studies.

METHODS

The Fragile Families and Child Wellbeing Study

The FFCWS is a cohort study in 20 large US cities that oversampled births to unmarried parents ($n = 4789$). Mothers and fathers were interviewed after the birth of their child and by phone approximately 1, 3, 5, and 9 years later. Families in a substudy were visited at home when children were ages 3 years ($n = 2596$), 5 years ($n = 2366$), and 9 years ($n = 3391$). The MDoC was collected as part of this substudy in 18 cities at age 5 years. At the age-9 wave, teachers were mailed a questionnaire, and children completed a short computer-assisted personal interview.

Over 2000 mothers were administered the MDoC ($n = 2113$). Approximately 10% of cases were uncodeable because of administration error. Mothers who did not participate in the age-3 interview ($n = 73$) or did not live with the child ($n = 29$) were also excluded, leaving a final analytic sample of 1789. The mothers were largely disadvantaged (21% lived in poverty and 30% had less than a high school degree) but diverse in terms of race/ethnicity

(54% Black, 23% Hispanic, 20% White, and 3% other) and family structure (40% single, 32% cohabiting, and 28% married).

There were low rates of missing data at ages 3 and 5 years (<6% per variable). At age 9 years, 14% of children lacked self-report data, and 40% lacked teacher-report data. Multiple imputations were conducted using the *ice* command in STATA (StataCorp, College Station, TX, USA). Only unimputed values of the age-9 dependent variables were analysed (von Hippel, 2007); thus, the sample size varies across models (*N*s are reported in tables). Because statistics are averaged across imputed datasets (Rubin, 1987), standard errors rather than standard deviations are reported. The results of multivariate models estimated without imputed data were the same as those reported here. Robust standard errors adjusted for clustering by city in multivariate models.

Measures

The Maternal Description of Child—After obtaining consent to audiotape during the age-5 home visit, data collectors asked mothers the following open-ended questions: (1) ‘How is CHILD similar to his/her sibling/closest age sibling/cousin?’ (2) ‘How is s/he different?’ (3) ‘Now I’d like to get a general picture of CHILD. Can you tell me a little about him/her?’ (4) ‘Who is CHILD more like, you or his/her other parent? Why?’ (5) ‘All children are easier to raise in some ways and harder in others. How would you like CHILD to be different?’ (6) ‘How do you feel about CHILD’s behaviour when you are around other people?’ and (7) ‘How do you feel when you are away from CHILD?’ Probes, following Caspi et al. (2004), included the following: ‘How would you describe his/her personality?’ ‘I’ve only just met him/her. Can you tell me what s/he is really like?’ and ‘How does s/he compare to other children his/her age?’ Mothers were interviewed in English or Spanish.

In consultation with Caspi, we created global scales of positive and negative affect and detachment that accounted for both the number and tone of comments made in response to all of the aforementioned questions (Ryan, Martin, & Ontaneda, 2006). Six graduate students coded these scales whilst listening to audiotapes. A single research assistant (RA) served as the ‘gold standard’ for calculating coder reliability. After coders were certified as reliable ($\kappa = 0.85$), the RA did ongoing reliability checks on 15% of each coder’s caseload ($r = 0.84$ on Positive Affect, 0.86 on Negative Affect, and 0.73 on Detachment). The RA and three coders coded Spanish-language tapes (5%).

The Positive Affect scale captured the mother’s expressions of love, affection, and pride whilst describing her child. Coders were instructed to consider the number of positive statements, the level of descriptive detail (called specificity), and tone of voice. The scale had 5 points (1 = Expresses 0–2 positive statements towards child and almost no positive tone, 5 = Nearly every (or every) statement is a positive one, tone is consistently positive, and there is much specificity present in statements). Negative Affect captured the quantity and intensity of mothers’ expressions of dislike and disappointment. Coders considered the content of descriptions, the number of negative statements, and the mother’s tone of voice. The scale had 5 points (1 = Expresses 0–2 negative statements towards child and no negative tones, 5 = Nearly every (or every) statement is a negative one, and tone is consistently negative; the child is presented as a problem).

Detachment captured flat affect, lack of interest in the child, and lack of familiarity with the child as evidenced in superficial statements such as 'He's a regular kid' or 'He loves his bike'. This scale had 3 points (1 = Does not express any statements or tone indicating detachment, 3 = Expresses four or more statements indicating detachment from child and some to much flatness in tone). We also created a Verbal scale to serve as a control for the mother's verbal ability, given that mothers with better verbal skills might score higher on both positive and negative affect. Coders considered both the number of words mothers used and the precision and descriptiveness of words. This scale had 3 points (1 = *Not at all verbal*, 3 = *Very verbal*).

Age-3 predictors—Demographic characteristics include maternal education, race/ethnicity, marital status, and household poverty status. Maternal parenting stress was assessed using four items ($\alpha = 0.63$) from the Parenting Stress Index (Abidin, 1995). Maternal depression was measured using the Composite International Diagnostic Interview Short Form Section A ($\alpha = 0.92$; Kessler, Andrews, Mroczek, Ustun & Wittchen, 1998). Secure child–mother attachment was assessed using the MAS-39 (Bimler & Kirkland, 2005), an attachment Q-sort procedure for toddlers. Mothers sorted 39 cards into five piles according to how well they described their child, and multidimensional scaling was used to represent each item as a point in a three-dimensional map with axes representing security versus insecurity, independence versus dependence, and object versus social orientation. Children were categorized as either securely or insecurely attached. Mothers' receptive vocabulary was assessed by the Peabody Picture Vocabulary Test (PPVT-III) (Dunn & Dunn, 1997). Child sex and birth order were recorded at baseline. Difficult temperament was reported by the mother when the child was aged 1 year using the average of three items ($\alpha = 0.60$) from the Emotionality, Adaptability, and Sociability Temperament Survey for Children (Buss & Plomin, 1984).

Age-5 correlates—Demographic characteristics of the mother indicated whether the family was in poverty, whether the mother graduated from high school or obtained a General Educational Development (GED), and whether the mother was married. The mother's parenting stress ($\alpha = 0.66$) and depression ($\alpha = 0.95$) were measured as they had been at age 3 years. Mothers reported whether they had spanked the study child in the past month. Maternal warmth and hostility were measured using items from the Home Observation for Measurement of the Environment (HOME) Inventory (Caldwell & Bradley, 1984) that were observed by data collectors during the home visit. Warmth is the average of eight items ($\alpha = 0.80$), and Hostility is the average of four items ($\alpha = 0.73$). Mothers reported on children's externalizing (28 items; $\alpha = 0.85$) and internalizing (25 items; $\alpha = 0.71$) behaviours using items drawn from the Child Behavior Checklist (Achenbach, 1991).

Age-9 outcomes—Children reported on their closeness with their mother (1 = *extremely close*, 4 = *not very close*; reverse coded). Teachers reported on children's behaviour using an adapted version (with permission) of the Social Skills Rating System (SSRS; Gresham & Elliott, 1990). The externalizing and internalizing scales each included six items ($\alpha = 0.93$ and 0.85 , respectively) and used a 4-point scale (1 = *never*, 4 = *very often*). Responses were averaged. Children's positive peer relations were measured using the Early Childhood

Longitudinal Study-Kindergarten Cohort's scale of that name. It averaged 10 items ($\alpha = 0.95$) and used the same 4-point scale as the SSRS scales.

RESULTS

Maternal Description of Child Scale Scores

The means and standard deviations for the MDoC scales are shown in Table 1; differences across key demographic variables are noted. Positive Affect was higher for girls versus boys, White mothers versus Black and Hispanic mothers, married mothers versus single and cohabiting mothers, mothers above versus below the poverty line, and mothers with more versus less education. Negative Affect was higher for Black mothers versus Hispanic mothers, single and cohabiting versus married mothers, mothers below versus above the poverty line, and mothers with less versus more education. Detachment scores were higher for Black mothers versus White and Hispanic mothers, single and cohabiting versus married mothers, mothers below versus above the poverty line, and mothers with less versus more education. Verbal scores were higher for mothers above versus below the poverty line and for mothers with more versus less education. White mothers scored higher than Hispanic mothers on Verbal, who in turn scored higher than Black mothers.

Convergent Validity of the Maternal Description of Child Affect Scales

As shown in Table 2, there were significant correlations between the MDoC scales and other measures of parenting at age 5 years. Positive Affect was correlated with the HOME Warmth scale, and Negative Affect was correlated with the HOME Hostility scale. Positive Affect was negatively correlated and Negative Affect was positively correlated with spanking. Positive Affect was negatively correlated and Negative Affect was positively correlated with maternal depression and parenting stress. Positive Affect was negatively correlated and Negative Affect was positively correlated with the child's internalizing and externalizing behaviours. Detachment was negatively correlated with Warmth and positively correlated with Hostility.

The predictors of the MDoC affect scores in multivariate models resembled those of observed maternal affect in past studies. We regressed each of the three affect scales on earlier (age 3 years unless otherwise specified) characteristics. As shown in Table 3, higher Negative Affect scores at age 5 years were predicted by more difficult child temperament, mother's nonmarried status, mother's younger age, and more parenting stress. Higher Positive Affect was predicted by secure mother-child attachment, higher maternal education and age, and lower parenting stress. Higher Detachment was predicted by being Black, in poverty, and younger.

Predictive Validity of the Maternal Description of Child Affect Scales

The three MDoC affect scales, controlling for the Verbal scale, were used simultaneously to predict self-reported and teacher-reported measures of children's behaviour at age 9 years. Child scores on internalizing at age 5 years were controlled in the model of age-9 internalizing behaviour, whereas scores on externalizing at age 5 years were controlled in the model of age-9 externalizing behaviour. Models of age-9 closeness to mother and peer

relations did not control for age-5 measures of those constructs, as they had not been collected.

Results show that Positive Affect at child age 5 years predicted greater closeness to mother and better peer relations at age 9 years (Table 4). Negative Affect at age 5 years predicted higher externalizing behaviours and poorer peer relations scores at age 9 years. Neither Positive Affect nor Negative Affect predicted internalizing behaviours. Detachment did not predict any of the outcomes.

Convergent Validity of the Verbal Scale

The convergent validity of the Verbal scale was suggested by its correlation of 0.20 ($p < 0.001$) with the mother's PPVT-III score (Table 2). Additionally, it behaved similarly to the PPVT when the four models of age-9 behaviour were re-run using the mother's PPVT score instead of her Verbal score as a control for verbal skills (not shown). The coefficients for the affect scales and the amount of overall variance explained by models were nearly identical (available from first author upon request).

DISCUSSION

The MDoC is an innovative measure of the parent-child relationship that was successfully administered in a large, ethnically diverse, predominantly low-income US sample. Correlational and longitudinal evidence indicates the convergent and predictive validity of the Positive and Negative Affect scales. Specifically, concurrent associations between these scales and the HOME Warmth and Hostility scales were consistent with previous measures of maternal affect from a Five Minute Speech Sample (Kaugars et al., 2007) and video observations (Ayoub et al., 2009; NICHD Early Child Care Research Network, 2003).

The MDoC Positive and Negative Affect scales also replicated past videotaped and observed measures of maternal affect in their associations with family demographics (Bradley, Corwyn, Pipes McAdoo, & Garcia Coll, 2001; Iruka, LaForett, & Odom, 2012; Lugo-Gil & Tamis-LeMonda, 2008), maternal mental health (Baker et al., 2000; Olino et al., 2011), and child behaviour (Callahan, Scaramella, Laird, & Sohr-Preston, 2011; Denham et al., 2000; Dennis, 2006). Further, the predictors of these scales resembled those of observed maternal affect scales in past studies. Negative Affect was predicted by child temperament (Brophy & Dunn, 2002; van der Bruggen, Stams, Bogels & Paulussen-Hoogeboom, 2010) and mother's marital status (Gibson-Davis & Gassman-Pines, 2010) and younger age (Berlin, Brady-Smith, & Brooks-Gunn, 2002). Positive Affect was predicted by secure attachment (Barnett, Kidwell, & Leung, 1998; Frosch, Cox, & Goldman, 2001) and older maternal age (Belsky, Bell, Bradley, Stallard, & Stewart-Brown, 2006; Garcia Coll, Hoffman & Oh, 1987). Finally, as with observational measures, Positive Affect predicted better peer relations, and Negative Affect predicted poorer peer relations (Denham et al., 2000; Isley, O'Neil, Clatfelter, & Parke, 1999).

There was little evidence of the predictive validity of the Detachment scale, as it did not predict any age-9 behaviors. Moreover, although Detachment was correlated with HOME Warmth and Hostility in the expected directions, it was uncorrelated with maternal

depression and parenting stress. One possible explanation for the relatively poor performance of the Detachment scale is that it was highly skewed. The vast majority of mothers scored a 1 out of 3 points. It may be too difficult to code detached behaviour via audiotape when visual cues such as facial expressions are absent. It is also possible that including the specificity of mothers' descriptions as a criterion of detachment was misguided. Given that previous studies of observed maternal affect focus far less on detachment than on positivity and negativity, the inclusion of this scale in the future may not be necessary.

Taken together, these results suggest that the MDoC has the potential to be incorporated in other large-scale surveys of children and families. Of particular interest is the potential for the MDoC to be administered by phone. Correlations between the MDoC affect scales and measures of maternal mental health, spanking, and child behaviour problems were similar with, if not stronger than, correlations between those measures and the HOME Warmth and Hostility scales, which were observed in person. For example, the correlation between Negative Affect and parenting stress was 0.22 ($p < 0.001$), compared with a 0.13 ($p < 0.001$) correlation between HOME Hostility and parenting stress. Similarly, correlations between Positive Affect and spanking, child externalizing, and child internalizing appeared larger than analogous correlations between the HOME Warmth scale and those measures. Correlations between Negative Affect and spanking, externalizing, and internalizing were also larger than analogous correlations for the HOME Hostility scale.

Additionally, the Verbal scale appears to behave similarly with the PPVT-III. Although Verbal is a more simplistic measure, it captures expressive as opposed to receptive verbal skills, which may be more highly correlated with expressions of affect. If future research confirms the viability of phone administration of the MDoC, large-scale studies may be able to obtain high-quality measures of both maternal affect and verbal skill whilst averting the costs of in-person data collection.

A shortcoming of this study was our inability to compare MDoC affect scales with affect scales from comparable videotaped parent-child interactions. A high correlation between the MDoC scales and videotape scales would provide the most stringent assurance of convergent validity. In addition, the associations amongst maternal affect, family characteristics, and child behaviour were yielded in a non-experimental context and thus do not permit inferences about causality.

REFERENCES

- Abidin, RR. Parenting stress index. 3rd ed.. Psychological Assessment Resources, Inc.; Odessa, FL: 1995.
- Achenbach, TM. Manual for the Child Behavior Checklist/4-18 and 1991 Profile. Author; Burlington, VT: 1991.
- Ayoub C, O'Connor E, Rappolt-Schlichtmann G, Vallotton C, Raikes H, Chazan-Cohen R. Cognitive skill performance among young children living in poverty: Risk, change, and the promotive effects of Early Head Start. *Early Childhood Research Quarterly*. 2009; 24:289–305.
- Baker BL, Heller TL, Henker B. Expressed emotion, parenting stress, and adjustment in mothers of young children with behavior problems. *Journal of Child Psychology and Psychiatry*. 2000; 41:907–915. [PubMed: 11079433]

- Barnett D, Kidwell SL, Leung KH. Parenting and preschooler attachment among low-income urban African-American families. *Child Development*. 1998; 69:1657–1671. [PubMed: 9914645]
- Belsky J, Bell B, Bradley RH, Stallard N, Stewart-Brown SL. Socioeconomic risk, parenting during the preschool years and child health age 6 years. *European Journal of Public Health*. 2006; 17:508–513. [PubMed: 17170020]
- Berlin LJ, Brady-Smith C, Brooks-Gunn J. Links between childbearing age and observed maternal behaviors with 14-month-olds in the Early Head Start Research and Evaluation Project. *Infant Mental Health Journal*. 2002; 23:104–129.
- Bimler, D.; Kirkland, J. *Fragile Families Child Neglect and Child Care: Q-sort data*. Such & Such, Ltd.; 2005. Unpublished report
- Bowes L, Maughan B, Caspi A, Moffitt TE, Arseneault L. Families promote emotional and behavioural resilience to bullying: Evidence of an environmental effect. *Journal of Child Psychology and Psychiatry*. 2010; 51:809–817. [PubMed: 20132419]
- Bradley RH, Corwyn RF, Pipes McAdoo H, Garcia Coll C. The home environments of children in the United States. Part I: Variations by age, ethnicity, and poverty status. *Child Development*. 2001; 72:1844–1867. [PubMed: 11768149]
- Brophy M, Dunn J. What did mummy say? Dyadic interactions between young “hard to manage” children and their mothers. *Journal of Abnormal Child Psychology*. 2002; 30:103–112. [PubMed: 12002392]
- Buss, AH.; Plomin, R. *Temperament: Early developing personality traits*. Lawrence Erlbaum; Hillsdale, NJ: 1984.
- Caldwell, BM.; Bradley, RH. *Home Observation for Measurement of the Environment: Administration manual*, rev. ed. University of Arkansas at Little Rock, Center for Applied Studies in Education; Little Rock: 1984. Unpublished manuscript
- Callahan KL, Scaramella LV, Laird RD, Sohr-Preston SL. Neighborhood disadvantage as a moderator of the association between harsh parenting and toddler-aged children's internalizing and externalizing problems. *Journal of Family Psychology*. 2011; 25:68–76. [PubMed: 21355648]
- Caspi A, Moffitt TE, Morgan J, Rutter M, Taylor A, Arseneault L, Tully L, Jacobs C, Kim-Cohen J, Polo-Tomas M. Maternal expressed emotion predicts children's antisocial behavior problems: Using monozygotic-twin differences to identify environmental effects on behavioral development. *Developmental Psychology*. 2004; 40:149–161. [PubMed: 14979757]
- Daley D, Sonuga-Barke EJS, Thompson M. Assessing expressed emotion in mothers of preschool AD/HD children: Psychometric properties of a modified speech sample. *Journal of Clinical Psychology*. 2003; 42:53–67.
- Denham SA, Workman E, Cole PM, Weissbrod C, Kendziora KT, Zahn-Waxler C. Prediction of externalizing behavior problems from early to middle childhood: The role of parental socialization and emotion expression. *Development and Psychopathology*. 2000; 12:23–45. [PubMed: 10774594]
- Dennis T. Emotional self-regulation in preschoolers: The interplay of child approach reactivity, parenting, and control capacities. *Developmental Psychology*. 2006; 42:84–97. [PubMed: 16420120]
- Dunn, LM.; Dunn, LM. *Peabody Picture Vocabulary Test*. 3rd ed.. American Guidance Service; Circle Pines, MN: 1997.
- Frosch CA, Cox MJ, Goldman BD. Infant–parent attachment and parental and child behavior during parent–toddler interaction. *Merrill-Palmer Quarterly*. 2001; 47:445–474.
- Garcia Coll CT, Hoffman J, Oh W. The social ecology and early parenting of Caucasian adolescent mothers. *Child Development*. 1987; 58:955–963. [PubMed: 3608665]
- Gibson-Davis CM, Gassman-Pines A. Early childhood family structure and mother–child interactions: Variation by race and ethnicity. *Developmental Psychology*. 2010; 46:151–164. [PubMed: 20053014]
- Gresham, FM.; Elliott, SN. *Social skills rating system*. American Guidance Service; Circle Pines, MN: 1990.

- Iruka IU, LaForett DR, Odom EC. Examining the validity of the family investment and stress models and relationship to children's school readiness across five cultural groups. *Journal of Family Psychology*. 2012; 26:359–370. [PubMed: 22545934]
- Isley SL, O'Neil R, Clatfelter D, Parke RD. Parent and child expressed affect and children's social competence: Modeling direct and indirect pathways. *Developmental Psychology*. 1999; 35:547–560. [PubMed: 10082025]
- Kaugars AS, Moody EJ, Dennis C, Klinnert MD. Validity of the Five Minute Speech Sample in families with infants from low-income backgrounds. *Infant Behavior & Development*. 2007; 30:690–696. [PubMed: 17572503]
- Kessler RC, Andrews G, Mroczek D, Ustun TB, Wittchen HU. The World Health Organization Composite International Diagnostic Interview Short Form (CIDI-SF). *International Journal of Methods in Psychiatric Research*. 1998; 7:171–185.
- Lugo-Gil J, Tamis-LeMonda CS. Family resources and parenting quality: Links to children's cognitive development across the first 3 years. *Child Development*. 2008; 79:1065–1085. [PubMed: 18717907]
- Narayan AJ, Herbers JE, Plowman EJ, Gewirtz AH, Masten AS. Expressed emotion in homeless families: A methodological study of the Five-Minute Speech Sample. *Journal of Family Psychology*. 2012; 26:648–653. [PubMed: 22709263]
- N. I. C. H. D. Early Child Care Research Network. Do children's attention processes mediate the link between family predictors and school readiness? *Developmental Psychology*. 2003; 39:581–593. [PubMed: 12760525]
- Olino TM, Lopez-Duran NL, Kovacs M, George CJ, Gentzler AL, Shaw DS. Developmental trajectories of positive and negative affect in children at high and low familial risk for depressive disorder. *Journal of Child Psychology and Psychiatry*. 2011; 52:792–799. [PubMed: 21039488]
- Pasalich DS, Dadds MR, Hawes DJ, Brennan J. Assessing relational schemas in parents of children with externalizing behavior disorders: Reliability and validity of the Family Affective Attitude Rating Scale. *Psychiatry Research*. 2011; 185:438–443. [PubMed: 20724001]
- Reichman N, Teitler J, Garfinkel I, McLanahan S. Fragile Families: Sample and design. *Children and Youth Services Review*. 2001; 23:303–326.
- Rubin, DB. Multiple imputation for nonresponse in surveys. Wiley; New York: 1987.
- Ryan, RM.; Martin, A.; Ontaneda, E. Fragile Families In Home Study, Maternal Description of Child coding scheme: Instructions. National Center for Children and Families, Teachers College; New York: 2006.
- van der Bruggen CO, Stams GJJM, Bogels SM, Paulussen-Hoogeboom MC. Parenting behavior as a mediator between young children's negative emotionality and their anxiety/depression. *Infant and Child Development*. 2010; 19:354–365.
- von Hippel PT. Regression with missing Ys: An improved strategy for analyzing multiply imputed data. *Sociological Methodology*. 2007; 37:83–117.
- Zaslow MJ, Weinfield NS, Gallagher M, Hair EC, Ogawa JR, Egeland B, Tabors PO, De Temple JM. Longitudinal prediction of child outcomes from differing measures of parenting in a low-income sample. *Developmental Psychology*. 2006; 42:27–37. [PubMed: 16420116]

Table 1

Maternal Description of Child scale scores by key demographic characteristics

	Positive Affect <i>M</i> (<i>SE</i>)	Negative Affect <i>M</i> (<i>SE</i>)	Detachment <i>M</i> (<i>SE</i>)	Verbal <i>M</i> (<i>SE</i>)
Child gender				
Male	2.93 _a (0.03)	1.95 (0.03)	1.12 (0.01)	2.04 (0.02)
Female	3.02 _b (0.03)	1.89 (0.03)	1.10 (0.01)	2.06 (0.02)
Maternal race/ethnicity				
White	3.12 _a (0.04)	1.91 _{ab} (0.05)	1.04 _a (0.01)	2.13 _a (0.02)
Black	2.90 _b (0.03)	1.96 _a (0.03)	1.17 _b (0.01)	2.00 _b (0.02)
Hispanic	3.04 _{ab} (0.04)	1.84 _b (0.05)	1.05 _a (0.01)	2.06 _c (0.02)
Other	2.96 _{ab} (0.12)	1.87 _{ab} (0.12)	1.06 _a (0.04)	2.13 _{abc} (0.07)
Maternal marital status				
Single	2.91 _a (0.03)	1.96 _a (0.04)	1.14 _a (0.02)	2.00 _a (0.02)
Cohabiting	2.87 _a (0.04)	2.01 _a (0.04)	1.14 _a (0.02)	2.02 _a (0.02)
Married	3.15 _b (0.03)	1.79 _b (0.04)	1.05 _b (0.01)	2.12 _b (0.02)
Family poverty status				
In poverty	2.80 _a (0.05)	2.03 _a (0.06)	1.16 _a (0.02)	1.95 _a (0.03)
Not in poverty	3.02 _b (0.02)	1.89 _b (0.02)	1.10 _b (0.01)	2.07 _b (0.01)
Maternal education				
HS/GED	2.85 _a (0.03)	1.97 _a (0.03)	1.15 _a (0.01)	1.98 _a (0.01)
>HS/GED	3.15 _b (0.03)	1.86 _b (0.03)	1.06 _b (0.01)	2.14 _b (0.02)
Total	2.98 (0.02)	1.92 (0.02)	1.11 (0.01)	2.05 (0.01)

¹Note Unshared subscripts across demographic categories (e.g., child gender) denote statistically significant ($p < 0.05$) differences within columns. Calculations are based on five multiply imputed data sets. $N = 1789$.

SE, standard error; HS, high school; GED, General Educational Development.

Table 2
Bivariate correlations amongst MDoC scales and measures of parenting, maternal mental health, and child behaviour at age 5 years

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. MDoC Positive Affect	1.00										
2. MDoC Negative Affect	*** -0.40	1.00									
3. MDoC Detachment	*** -0.39	0.03	1.00								
4. MDoC Verbal	*** 0.47	0.04	*** -0.37	1.00							
5. M PPVT-III	*** 0.20	-0.05	*** -0.17	*** 0.20	1.00						
6. M parenting stress	*** -0.16	*** 0.22	*** 0.03	-0.04	*** -0.11	1.00					
7. M depression	** -0.07	*** 0.12	*** -0.01	0.00	-0.03	*** 0.18	1.00				
8. HOME Warmth	*** 0.22	*** -0.13	*** -0.15	*** 0.15	*** 0.20	*** -0.14	-0.05	1.00			
9. HOME Hostility	*** -0.17	*** 0.19	*** 0.09	-0.05	** -0.08	*** 0.13	0.07*	*** -0.31	1.00		
10. Mother spansks	*** -0.09	*** 0.15	*** 0.01	-0.02	0.02	*** 0.15	0.05*	-0.03	0.07	1.00	
11. C externalizing	*** -0.31	*** 0.47	*** 0.03	-0.05	** -0.07	*** 0.29	*** 0.22	*** -0.15	*** 0.20	*** 0.20	1.00
12. C internalizing	*** -0.20	*** 0.24	*** 0.03	-0.02	*** -0.14	*** 0.24	*** 0.21	* -0.07	0.05	** 0.07	*** 0.46

¹Note Calculations are based on five multiply imputed data sets. *N* = 1789. M, maternal; C, child; MDoC, Maternal Description of Child; PPVT, Peabody Picture Vocabulary Test; HOME, Home Observation for Measurement of the Environment.

*
p < 0.05

**
p < 0.01

p < 0.001.

Table 3

Regression of age-5 MDoC affect scales on age-3 predictors

	Positive Affect		Negative Affect		Detachment	
Mother > HS/GED	0.11 ^{***}	(0.04)	−0.01	(0.03)	−0.08	(0.02)
Black	−0.03	(0.06)	−0.04	(0.06)	0.11 ^{***}	(0.01)
Hispanic	0.02	(0.06)	−0.05	(0.07)	−0.03	(0.02)
Other	−0.02	(0.11)	−0.01	(0.11)	0.01	(0.03)
In poverty	−0.05	(0.04)	−0.03	(0.05)	0.07 [*]	(0.02)
Mother married	0.03	(0.04)	−0.06 ^{**}	(0.03)	−0.01	(0.01)
Maternal age	0.10 ^{***}	(0.00)	−0.06 ^{**}	(0.00)	−0.06 ^{**}	(0.00)
Maternal parenting stress	−0.10 [*]	(0.04)	0.11 ^{***}	(0.03)	0.03	(0.01)
Maternal depression	0.02	(0.01)	0.06	(0.01)	−0.03	(0.00)
Secure child–mother attachment	0.10 ^{**}	(0.04)	−0.12 ^{**}	(0.06)	−0.03	(0.02)
Child male	−0.04	(0.04)	0.02	(0.04)	0.03	(0.02)
Child difficult temperament	−0.04	(0.02)	0.08 ^{**}	(0.02)	−0.01	(0.01)
<i>N</i>	1789		1789		1789	
d.f.	15.0		15.1		14.8	

¹Note Results present standardized betas (standard errors) in separate regression models of Positive Affect, Negative Affect, and Detachment. Calculations are based on five multiply imputed data sets. MDoC, Maternal Description of Child; HS, high school; GED, General Educational Development.

*
 $p < 0.05$

**
 $p < 0.01$

 $p < 0.001$.

Table 4

Regression of age-9 child behaviour measures on MDoC affect scales and controls from age 5 years

	Child-reported closeness with mother		Teacher-reported externalizing		Teacher-reported internalizing		Teacher-reported peer relations	
MDoC Positive Affect	0.07 [*]	(0.03)	−0.02	(0.02)	−0.03	(0.03)	0.08 [*]	(0.03)
MDoC Negative Affect	0.01	(0.03)	0.07 [*]	(0.02)	0.03	(0.02)	−0.10 [*]	(0.03)
MDoC Detachment	−0.00	(0.05)	0.10	(0.14)	0.04	(0.07)	−0.08 [†]	(0.10)
MDoC Verbal	−0.05	(0.05)	0.00	(0.06)	0.02	(0.05)	−0.02	(0.06)
In poverty	−0.04	(0.06)	0.08	(0.08)	0.01	(0.07)	−0.08 [*]	(0.07)
Black	0.04	(0.04)	0.14 ^{***}	(0.02)	0.00	(0.03)	−0.10 ^{**}	(0.05)
Hispanic	0.01	(0.04)	−0.02	(0.05)	0.01	(0.04)	0.01	(0.05)
Other race/ethnicity	0.01	(0.08)	0.04	(0.13)	−0.01	(0.06)	−0.01	(0.15)
Child male	−0.06 [*]	(0.03)	0.14 ^{***}	(0.04)	0.09 [*]	(0.03)	−0.19 ^{***}	(0.04)
Mother > HS/GED	0.00	(0.05)	0.00	(0.05)	0.01	(0.04)	−0.01	(0.05)
Mother married	0.04	(0.04)	−0.13 ^{***}	(0.04)	−0.11 [*]	(0.04)	0.17 ^{***}	(0.04)
Externalizing problems	--		0.18 ^{***}	(0.00)	--		--	
Internalizing problems	--		--		0.10 ^{**}	(0.00)	--	
<i>N</i>	1565		1561		1076		1075	
d.f.	15.3		15.2		15.2		15.3	

[†]Note Results present standardized betas (standard errors) in separate regression models of age-9 measures. Calculations are based on five multiply imputed data sets.

MDoC, Maternal Description of Child; HS, high school; GED, General Educational Development.

-- Not included in the model.

[†]
 $p < 0.10$

^{*}
 $p < 0.05$

^{**}
 $p < 0.01$

^{***}
 $p < 0.001$.