

Developmental History of Care and Control, Depression and Anger: Correlates of Maternal Sensitivity in Toddlerhood

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Abstract:

This study examined maternal sensitivity in response to toddler distress in relation to mothers' childhood care and control experiences with parents, maternal depression, and maternal anger. Fifty-two mothers and infants participated. Mothers reported childhood care and control experiences prenatally. At 2½ years, mothers reported depressive symptoms and anger on questionnaires, and reported maternal behavior in a daily diary for 1 week, yielding ratings of maternal sensitivity to fear and anger. Results were as follows: (a) Mothers' acceptance during childhood correlated negatively with both maternal depression and maternal anger, and positively with maternal sensitivity to fear at 2½ years; (b) maternal anger mediated the association between childhood care and maternal sensitivity to fear at 2½ years; and (c) the interaction of maternal and paternal control during childhood predicted maternal sensitivity to anger at 2½ years, controlling for maternal education. When maternal control was low, paternal control was positively associated with maternal sensitivity to anger whereas when maternal control was high, paternal control was negatively associated with maternal sensitivity to anger. Results are discussed in relation to prior studies, with particular emphasis on attachment theory. Implications for preventive intervention efforts are considered.

Keywords: Child Development | Parenting | Toddlers | Parental Behavior | Maternal Sensitivity

Article:

Sensitive parent–infant interactions have been shown to predict adaptive emotional and psychosocial development (Ainsworth, Blehar, Waters, & Wall, 1978; Cassidy, 1994; Isabella & Belsky, 1991; Jacobson & Wille, 1986), and are theorized to underlie the development of secure attachment relationships (DeWolff & van IJzendoorn, 1997). From an attachment theory perspective, effects of early acceptance/rejection by caregivers continue through adulthood, affecting the development of depression and parental behavior through their impact on cognition and emotion (Bretherton & Munholland, 1999; Gotlib & Hammen, 1992). Prior research has

supported this thesis (Crockenberg & Leerkes, 2003), but overlooked the possibility that the experience of parental control during childhood also affects parental behavior, especially during toddlerhood when infants' autonomy needs increase, posing new challenges for mothers. In this study, we had two goals: (a) to test associations between mothers' developmental histories of both acceptance and control and their sensitivity to their children's fear and anger at 2_{1/2} years and (b) to test the mediating effects of maternal depression and anger on these associations.

A DEVELOPMENTAL MODEL OF MATERNAL BEHAVIOR

From an attachment theory perspective, children construct internal working models of self and of the world in relation to self. These internal working models can be thought of as cognitive-emotional representations that are constructed in the course of repeated experiences with caregivers, especially parents with whom they have enduring relationships (Bowlby, 1969, 1973). Children who experience their parents as sensitive, loving, and accepting develop models of themselves as worthy and lovable and models of others as loving and trustworthy. They expect others to respond to them similarly and engage in behaviors that elicit care and acceptance. Conversely, children who experience rejection from parents develop models of themselves as unworthy and unlovable and models of others as unloving and untrustworthy. They expect others to treat them similarly, and thus behave in ways that elicit further rejection. In the absence of significant events that may alter the impact of early experiences, these childhood-based models are expected to continue to influence interpretations, emotions, and behavioral responses in adulthood (Sroufe & Fleeson, 1988) and thus are important contributors to parenting behavior.

Depression and History of Care

Gotlib and Hammen (1992) extend this conceptualization to the development of depression. According to their integrated cognitive-interpersonal model, depression results from negative interpretations of events and beliefs about the worth and efficacy of the self in relation to the world, and to important others in particular. Therefore, adults who remember their relationships with parents as rejecting or neglecting are at a risk for depression because their internal working models prompt them to appraise events and to behave in ways that confirm their expectations and increase feelings of sadness. Numerous retrospective studies link childhood history to adult depression (for a review, see Bemporad & Romano, 1992), and two studies have linked childhood rejection with postpartum depressive symptoms, controlling for prenatal depression (Crockenberg & Leerkes, 2003; Gotlib, Whiffen, Wallace, & Mount, 1991).

Depressed mothers' negative cognitions and feelings impact their ability to notice and respond promptly, appropriately, and consistently to their child's signals. A mother's self-focus and preoccupation with negative thoughts and feelings are expected to result in less sensitive maternal behavior. Many researchers have reported associations between maternal depression and dysfunctional mother-infant interaction (Campbell, Cohn, & Meyers, 1995; Cohn, Matias, Tronick, Connell, & Lyons-Ruth, 1986; Murray, Stanely, Hooper, & King, 1996) and negative parenting, regardless of child age or parental income (Downey & Coyne, 1990). Likewise, a mother's psychological state has been shown to impact her ability to attend to infant signals (Donovan, Leavitt, & Walsh, 1998).

Taken together, these findings lend support to the theory that mother's recollections and representations of childhood experiences underlie postpartum depressive symptomology, which in turn adversely affects maternal behavior. In fact, depressive feelings may be exacerbated during toddlerhood if another interprets her toddler's growing autonomy as rejection. There also may be another pathway between mothers' recollections of childhood and maternal sensitivity through their experiences of parental control, consistent with the expectation of equifinality (Cicchetti & Rogosch, 1996).

History of Control, Toddlerhood, and Anger

Erickson (1950) observed eight critical periods of development, with the first being the resolution of *basic trust* versus *basic mistrust*. According to Erickson, the amount of trust derived from the earliest infantile experience depends on the quality of the mother-child relationship and implies that one has learned to rely on the continuity of the provider. Erickson's second critical period of development, *autonomy* versus *shame and doubt*, involves the child's early experiences of control. The resolution of basic trust underlies the child's sense of self and supports early attempts to explore and master the environment; however, a continued experience of trust depends on the parent providing a certain degree of firmness and control to protect the child from his or her own undeveloped sense of discrimination in attempts to master his or her environment, while continuing to offer emotional support. An optimal level of control allows for a gradual and well-guided experience of the autonomy of free choice whereas a lack of moderate control exposes the child to arbitrary experiences of early doubt and shame that undermine a sense of trust.

We contend that issues around control are incorporated into internal working models of the self, and impact the way parents respond to control issues with their own children. This is consistent with Thompson's (2000) assertion that multiple dimensions of the early parent-child relationship impact internal working models, including how the parent and child cooperate in the context of conflict over differing goals and intentions. Control may be particularly relevant for mothers and infants during toddlerhood due to the developmental changes, infamously referred to as the "terrible twos," that occur during this period of development.

Following Erickson (1950), children who experience their parents as overly controlling or overprotective develop models of themselves as incompetent and nonautonomous, see others as trying to control them, and thus respond as though they are being controlled. Additionally, they may not learn to recognize and respect the autonomy and competence of others. Similarly, children who experience their parents as setting few or no limits may develop models of themselves as ineffectual and have an unrealistically high or low sense of their own control. A moderate, realistic sense of control over one's life is viewed as optimal (Grolnick, 2003). Presumably, attaining an optimal level of control results from the parent and child negotiating (and renegotiating) attachment behaviors that (a) provide the child with nurturance and safety and (b) encourage the child to explore within parameters that foster a sense of competency.

Indeed, one of the critical tasks of toddlerhood is the acquisition of skills that support autonomous and self-regulated behavior (Calkins, Smith, Gill, & Johnson, 1998). During the second year of life, as infants direct their attention increasingly towards exploring the

environment, they typically increase the distance between themselves and their primary caregivers. The onset and mastery of autonomous locomotion allow the child to take control over deciding where and when to go. Most eloquently, the toddler has developed the capacity to say “no.” This refusal to go along with the wishes of others and the ability to articulate a separate stance are hallmarks of an emerging sense of self. Lieberman (1996) highlighted the age-appropriate increase in angry and aggressive behaviors when parents curtail the child’s independent exploration and strivings for autonomy. New enactments of intense negative affect (e.g., temper tantrums and behaviors such as hitting, biting, and kicking as well as negative verbalizations) may accompany the developmental task of continuing to negotiate a goal-centered partnership with parents. Consequently, sensitive parenting can be challenging because 2-year-olds need both limit setting and emotional support to achieve their dual goals of autonomous exploration and continued closeness (Sroufe, Egeland, Carlson, & Collins, 2005). To set limits without emotional support, or conversely, to offer emotional support in the absence of limit setting, are each less sensitive maternal responses in many contexts than the more complex combination of limit setting with emotional support. Even mothers who respond sensitively earlier in infancy may struggle to do so during the second and third years of life, especially if their children’s increasing assertiveness evokes their own unresolved issues around control and autonomy.

Just as mothers with a history of low care are at risk for feelings of rejection and depression, resulting in less sensitive maternal behavior, mothers with a history of high control may interpret their toddlers’ autonomy seeking as attempts to control her (vs. rejection) and may feel angry (vs. sad). Whereas sadness relates to a sense of hopelessness and an inability to change a situation, anger is more likely to occur when some impediment to obtaining a goal exists (Carpenter & Halberstadt, 2000). Toddlerhood is replete with situations in which mothers and toddlers block each other’s goals, eliciting anger from one or both. The toddler’s developmental issues of autonomy and control combined with a mother who experienced control issues in her own childhood create a context especially likely to evoke anger and challenge a mother’s ability to be sensitive. For example, a mother may interpret her child’s autonomy seeking as purposeful attempts to annoy or control her, or the child’s autonomy seeking may make the mother feel as though she has lost control.

Anger has been defined as an emotional state that consists of feelings that vary in intensity, from mild irritation or annoyance to intense fury and rage, and that has many negative outcomes (Spielberger & Sydeman, 1999). According to Ross and Van Willigen (1996), parenthood significantly increases anger, and mothers exhibit the highest level of any group compared to fathers and women without children. Peterson, Ewigman, and Vandiver (1994) explored the relation between anger and other correlates of abusive parenting in a sample of low-income mothers with children under 5 years of age. Of the four behaviors rated most anger eliciting, three included what mothers described as “losing control over the child.” Mothers also rated misbehaviors requiring punishment, and again, of the top four behaviors, three dealt with direct challenges to maternal control, and also were the most likely to evoke physical discipline.

These findings demonstrate (a) the challenge mothers face in responding to control issues and (b) that anger is the emotion mothers express when their own issues with control are unresolved. It

follows that a developmental history of high parental control could contribute to less sensitive maternal behavior after control issues surface during the second year of life.

Evidence linking a developmental history of control with maternal sensitivity is scant, but has tended to show that mothers with low perceived control over self attempt to impose more external constraints and are more coercive during dyadic interaction (Bugental, Blue, & Cruzcoza, 1989; Houck, Booth, & Barnard, 1991). Further, authoritarian child-rearing beliefs that emphasize parental control over the child predict lower maternal sensitivity at 24 and 36 months (Owen, Booth, Vandell, & McCartney, 2000). Taken together, these studies have suggested a link between parental history of control and maternal sensitivity; however, none have examined the multiple pathways through which developmental history impacts maternal behavior. In this study, we test the mediating effects of anger rooted in a developmental history of control, and the mediating effects of depression rooted in a developmental history of rejection, on mothers' abilities to respond sensitively to their own children during toddlerhood. We hypothesize that (a) a childhood history of acceptance is positively associated with maternal sensitivity, and maternal depression mediates the association; and that (b) a developmental history of high control is negatively associated with maternal sensitivity, and maternal anger mediates the association. Mothers with a history of high control are expected to be less sensitive than are mothers with a history of moderate control.

Additionally, based on Erickson's (1950) view that either too much or too little control could compromise development, we explore the possibility of a curvilinear relationship between a history of control and maternal sensitivity, whereby a history of moderate control in childhood predicts the most sensitive maternal behavior. A mother who experienced a moderate level of control is most likely to have an internal working model of self and others as autonomous and competent, and to be best equipped to respond sensitively to the emergence and expression of autonomy and mastery in her toddler. Furthermore, there are different ways in which a moderate degree of control could occur. One possibility is that each parent provides their child with a moderate degree of control during childhood. Alternatively, maternal and paternal control could jointly influence mothers' overall experience of control; that is, a highly controlling parent could be balanced by a parent who exerts much less control, resulting in an overall moderate experience of control. We explore these possibilities in this study.

METHOD

Participants

Parents and toddlers involved in a longitudinal study of emotional reactivity and regulation participated. Data were collected originally from 92 families [primiparous mothers/fathers ($n=84$), and infants]. We recontacted families when children were approximately 2 $\frac{1}{2}$ years old to participate in a follow-up study and recruited the 52 mothers and infants in this phase of the study from 67 families who returned for the follow-up assessment. On average, mothers were 30 years old, had 15 years of education, and had been married or living with their partner for 4 years. Family income ranged from \$28,000 to \$170,000 ($M=\$72,085$). Sixty-eight percent of mothers had or were expecting an additional child; 2 mothers had separated from or divorced their husbands/partners. Thirty-two toddlers were male.

All mothers who remained in the area and who were willing to participate were included. Those who did not participate indicated that they were too busy for a variety of reasons, including the imminent or recent birth of another child and co-managing work and parenting. With one exception, participants did not differ from nonparticipants on demographic, maternal, or infant variables ($p > .20$, two-tailed); mothers who participated at 2_{1/2} years were older than those who did not, $t(90)=2.78$, $p < .01$, $M_s=30.1$ and 27.7 years, respectively.

Procedure

Mothers were contacted initially in the prenatal period, and reported demographic information and their childhood experience of care and control at that time. Mothers and their 6-month-old infants participated in a laboratory assessment of infant reactivity and maternal sensitivity. Two years later, mothers who participated in the follow-up were interviewed in a laboratory interview room and were introduced to the Parent Attachment Diaries to be completed at home. They received seven diaries to complete on 7 consecutive days, along with seven stamped/addressed envelopes in which to return the diaries on a daily basis. Mothers were paid \$15 upon completion of the diaries.

Measures

Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979). This self-report measure assesses the mother's own parenting history. The scale consists of 25 items; 13 form the Control subscale and 12 form the Care subscale. Responses are made using a 4-point Likert scale indicating how much each statement describes the parent (1=*very like*, 2=*somewhat like*, 3=*somewhat unlike*, 4=*very unlike*). Examples from the two subscales are: "Spoke to me with a warm and friendly voice" (Care) and "Tried to control everything I did" (Control). Mothers separately rate their experiences with mothers and fathers.

The PBI has acceptable test-retest reliability over a 3-week period (.63 for the Control scale and .76 for the Care scale) and good split-half reliability (.74 for the Control scale and .88 for the Care scale; Parker et al., 1979). In subsequent studies, PBI scores were stable over a 3-year period (Gotlib, Mount, Cordy, & Whiffen, 1988), and perceptions children had of their parents corresponded with the reports of the parents themselves (Parker, 1981). The PBI was highly stable in the full sample of this study from the prenatal period to 2_{1/2} years' postbirth (maternal care=.88, paternal care=.85, maternal control=.85, paternal control=.81, $ps < .001$). PBI data from the prenatal period were used in an effort to establish the minimum conditions for inferring causality (i.e., that x chronologically precedes y). Items were summed and averaged to derive four variables reflecting early parenting history: maternal and paternal care (Cronbach α s .92 and .94, respectively) and maternal and paternal control (Cronbach α s .87 and .85, respectively). Separate maternal and paternal variables were retained to allow exploration of their unique associations with maternal sensitivity and to allow us to test the interactive effects of mother and father control and current maternal sensitivity.

The Center for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977). Mothers' depressive symptoms were assessed when their children were 2_{1/2} years old using this 20-item checklist of moods, feelings, and cognitions associated with depression (e.g., "I felt depressed,"

“I felt that people dislike me”) designed for use with community samples. Mothers were asked to indicate how often they felt a particular way during the previous week on a 4-point scale. The CES-D has demonstrated convergent validity with the Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978), a standardized psychiatric interview, and with the Beck Depression Inventory (Wilcox, Prodromidis, Scafidi, & Field, 1995), and predicts dysfunctional parenting (Cohn et al., 1986), supporting its appropriateness for the purposes of this study. Items were summed and averaged to derive a measure of maternal depressive symptoms at 2_{1/2} years (Cronbach $\alpha = .84$). High scores indicate greater and more persistent symptomology. Seven (13%) mothers met the clinical cutoff for depression.

Parent Attachment Diaries (PAD, Dozier & Stovall, 1996). The PAD was designed to provide an alternative methodology to direct observation, in the form of daily diaries, to assess the sequences of behavior that occur between child and parent. The original PAD was intended for use with children younger than 2 years of age; we adapted it for use with toddlers. Mothers are asked to recall four incidents that occur in a given day: when the child is physically hurt, frightened, frustrated or angry, and separated/reunited with the parent. For each incident, mothers write a short narrative describing and contextualizing the specific incident (Typically, the narratives are a brief sentence and do not yield data on mothers' moods.) Then they report, using checklists: (a) their child's initial help-seeking behavior or lack thereof, (b) their response to that behavior, and (c) the child's reaction to the mother's response. Mothers check all options that apply to their child's behaviors and to their own response. They are asked to complete the diary for 7 consecutive days, and the importance of doing this each day was stressed. Mothers returned the diaries daily in self-addressed, stamped envelopes, although in several instances, diaries from several days were included in one envelope.

Maternal sensitivity for each context was rated on a 5-point scale based on the match between the mother's responses, the situation, and the toddler's level of distress. Scores range from insensitive responses (1) to highly sensitive responses (5). Insensitive responses included clear negative responses (e.g., spanking, laughing at distress) and ignoring or minimizing distress (e.g., saying “there's no reason to be afraid”). Sensitive responses included soothing the child, acknowledging the child's feelings, and altering the distressing situation. All responses were judged in relation to the child's expressed needs. For frustrated situations, highly sensitive responses were those that combined an affective component (e.g., acknowledging the child's feelings) with a limit/explanation when appropriate (e.g., you cannot hit your baby sister because it hurts her), or attempts to assist the child in achieving a blocked goal (e.g., coaching the child to complete a hard part of a puzzle). The three authors independently rated 30% of the diaries to assess reliability, yielding interrater reliabilities (weighted χ s) of .81 and .72, for frightened and frustrated/angry, respectively. Average ratings for each context were calculated, resulting in two variables: maternal sensitivity to fear at 2_{1/2} years and maternal sensitivity to anger at 2_{1/2} years. Only data from the frightened and frustrated/angry contexts were analyzed because mothers provided too few examples of hurt and separation to separately analyze them and because the absence of correlation between mothers' responses to their children in these contexts, $r(42) = -.03, p > .10$, argued against combining them.

State-Trait Anger Expression Inventory (STAXI, Spielberger, 1988). The STAXI was designed to provide relatively brief, objectively scored measures of the experience, expression, and control of anger. It consists of 44 items administered in three subsections and distributed across five

main scales: State Anger, Trait Anger, Anger-In, Anger-Out, and Anger Control. Only data from the Trait Anger and Anger Control subscales were included in final analyses (Cronbach α s=.73 and .82, respectively).¹ A subsection of 10 items measures trait anger, to which raters indicate “how I generally feel” on a frequency scale of 1 (*almost never*), 2 (*sometimes*), 3 (*often*), and 4 (*almost always*). Examples of trait anger are “I have a fiery temper,” “I fly off the handle,” and “It makes me furious when I am criticized in front of others.” Higher scores indicate greater and more persistent trait anger. Another subsection contains eight items that measure anger control, to which raters indicate “how often they generally react or behave in the manner described when you feel angry or furious,” based on the same 4-point frequency scale previously stated. Examples of anger control include “I am patient with others,” “I can stop myself from losing my temper,” and “I try to be tolerant and understanding.” Higher scores indicate greater and more consistent anger control. The items from both the Trait Anger and Anger Control subscales were averaged to derive scores of trait anger and anger control.

The trait section of the STAXI has a test-retest reliability of .77 for females over a 2-week interval (Jacobs,Latham,&Brown, 1988) and convergent validity with the Buss-Durkee Hostility Inventory, and the Hostility and Overt Hostility Scales of the Minnesota Multiphasic Personality Inventory (Spielberger & Sydeman, 1999). Forgays, Spielberger, Ottaway, and Forgays (1998) used factor analysis to confirm a seven-factor model that included Trait Anger and Anger Control, and reported reliability and validity data on the entire measure.

RESULTS

Preliminary Analyses

Outliers, skewness, and kurtosis were identified, and then corrected as recommended by Tabachnick and Fidell (1996). Three variables were significantly skewed (history of maternal and paternal control, and maternal sensitivity to fear at 2_{1/2} years), and these were transformed using a logarithmic transformation. Descriptive statistics were computed for each variable prior to transformation, and are displayed in Table 1.

Table 1. Descriptive Statistics

Prenatal Predictor Variables	N	M	SD	Range
Maternal Education	52	15.50	1.80	11.00–20.00
Maternal Care	52	3.37	0.61	1.75–4.00
Paternal Care	52	3.15	0.74	1.33–4.00
Maternal Control	52	1.84	0.57	1.08–3.69
Paternal Control	52	1.80	0.55	1.08–3.69
Postpartum Predictor Variables				
Depression	52	1.43	0.29	1.00–2.11
Trait Anger	52	1.67	0.31	1.00–2.40
Anger Control	52	24.06	4.32	16.00–31.00

Outcome Variables				
Sensitivity to Fear	52	4.37	0.76	2.00–5.00
Sensitivity to Anger	52	3.94	0.66	2.50–5.00

Identifying potential covariates. Potential covariates were identified by examining correlations between demographic variables (maternal age, education, family income), predictors (maternal and paternal care, maternal and paternal control), process measures (postpartum depressive symptoms, maternal anger), and maternal sensitivity to fear and anger, and by testing mean differences in maternal sensitivity as a function of child gender and the presence of a second child. Maternal education correlated positively with maternal sensitivity to anger at 2_{1/2} years (see Table 2), and therefore was included as a covariate in regressions predicting maternal sensitivity to anger at 2_{1/2} years. No other associations were significant ($ps < .10$).

Primary Analyses

Correlations between predictor and outcome variables were examined to determine whether the criteria for testing the hypothesized mediating effects were met. Hierarchical multiple regressions were used to test hypothesized mediating and moderating effects in relation to history of care and control, depressive symptoms, maternal anger, and maternal sensitivity. Interactive terms were created using centered variables; regression lines were plotted at fixed values of the predictors to interpret significant interactions (Aiken & West, 1991).

Correlations between predictors and outcomes. Correlations between and among prenatal predictors, postpartum predictors, and outcomes are reported in Table 2. Consistent with Hypothesis 1, maternal care correlated positively with maternal sensitivity to fear at 2_{1/2} years and correlated negatively with depressive symptoms at 2_{1/2} years. Also as hypothesized, depressive symptoms at 2_{1/2} years correlated negatively with maternal sensitivity to fear at 2_{1/2} years, meeting criteria to test a potential mediating effect (Baron & Kenny, 1986). Paternal care correlated negatively with depressive symptoms at 2_{1/2} years, but not with maternal sensitivity to fear or anger at 2_{1/2} years.

Consistent with Hypothesis 2, a mother's developmental history of maternal and paternal control correlated positively with trait anger, and trait anger correlated negatively with maternal sensitivity to fear, although not with maternal sensitivity to anger. However, as there were no statistically significant associations between maternal or paternal control and maternal sensitivity to fear or anger at 2_{1/2} years, nor curvilinear effects for either control variable, conditions were not met to test the proposed mediating effect of maternal anger between childhood history of control and maternal sensitivity to fear or anger (Baron & Kenny, 1986). However, maternal care correlated negatively with trait anger, $r(50) = -.36, p < .01$, and both variables correlated significantly with maternal sensitivity to fear, identifying trait anger as a possible mediator between maternal care and maternal sensitivity to fear at 2_{1/2} years.

Also consistent with Hypothesis 2, paternal control correlated negatively with anger control as a trend, and anger control correlated positively with maternal sensitivity to anger at 2_{1/2} years. Thus, a mother's recollection of low paternal control in childhood was associated with her ability to control anger, and her ability to control anger was related to her sensitivity to her toddler's anger. However, due to the lack of a statistically significant association between paternal control and maternal sensitivity to anger, and the weak association between paternal control and anger control, conditions were not met to test the proposed mediating effect of anger control between paternal control and sensitivity to anger (Baron & Kenny, 1986).

Hierarchical Multiple Regressions: Predicting Maternal Sensitivity to Fear and Anger

Mediating effects. The mediating effect of depressive symptoms at 2_{1/2} years between maternal care and maternal sensitivity to fear at 2_{1/2} years was tested using the regression method recommended by Baron and Kenny (1986). First, it was established that the predictors correlated significantly with each other and with maternal sensitivity to fear at 2_{1/2} years (Table 2). Second, it must be demonstrated that (a) maternal depression at 2_{1/2} years is associated with maternal sensitivity to fear at 2_{1/2} years, controlling for maternal care; and (b) there is a reduction in the strength of the direct association between maternal care and maternal sensitivity when controlling for maternal depression at 2_{1/2} years. Thus, maternal sensitivity to fear was regressed on both depressive symptoms and maternal care, entered in that order. Despite the reduction in the strength of the direct association between maternal care and maternal sensitivity to fear, original $\beta = .25, p < .10$; reduced $\beta = .19, n.s.$, maternal depression was not associated with maternal sensitivity to fear after controlling for maternal care, $\beta = -.19, n.s.$, as shown in Table 3. Thus, according to these procedures, and contrary to prediction, the link between maternal acceptance and maternal sensitivity to fear at 2_{1/2} years was not explained by maternal depressive symptoms.

Table 2. Zero Order Correlations Between Variables

Variables	1	2	3	4	5	6	7	8	9
Prenatal Predictors									
1. Maternal Education	=	=	=	=	=	=	=	=	=
2. Maternal Care	.16	=	=	=	=	=	=	=	=
3. Paternal Care	.01	.51**	=	=	=	=	=	=	=
4. Maternal Control	-.03	-.29*	-.11	=	=	=	=	=	=
5. Paternal Control	-.09	-.47**	-.44**	.62**	=	=	=	=	=
Postpartum Predictors									
6. Depression	-.18	-.30*	-.41**	.11	.22 _t	=	=	=	=
7. Trait Anger	-.06	-.36**	-.17	.19 _t	.36**	.32*	=	=	=
8. Anger Control	.28*	.14	.15	.09	-.20 _t	-.09	-.46**	=	=
Outcome Variables									

9. Sensitivity to Fear	-.08	.25*	.15	-.02	-.13	-.25*	-.34**	.05	=
10. Sensitivity to Anger	-.35**	-.09	-.06	.01	.03	.20 ^t	.07	.31*	.11

Note. $N = 52$ for all associations.

$t p < .10$. * $p < .05$. ** $p < .01$, one-tailed tests.

The potential mediating effect of trait anger between maternal care and maternal sensitivity to fear at 2_{1/2} years was then tested using the procedures described earlier. First, it was established that trait anger and maternal care correlated significantly with each other and with maternal sensitivity to fear (Table 2). Second, maternal sensitivity to fear was regressed on trait anger and maternal care, entered in that order. As shown in Table 3, (a) the direct effect of maternal care on sensitivity to fear was reduced and no longer significant, controlling for trait anger, original $\beta = .24$, $p < .10$; reduced $\beta = .14$, n.s.; and (b) trait anger remained significantly associated with maternal sensitivity to fear, controlling for maternal care, $\beta = -.29$, $p < .05$. These findings establish trait anger as a mediator between maternal care and maternal sensitivity to fear at 2_{1/2} years.

Moderating effects. To investigate the effect of mothers' overall experience of control on maternal sensitivity (Hypothesis 2), mothers' combined experience of maternal and paternal control was considered. Maternal sensitivity to anger at 2_{1/2} years was regressed on maternal control, paternal control, and the covariate maternal education entered simultaneously on the first step, followed by the interaction of Maternal Control \times Paternal Control. Results are reported in Table 4. Maternal education predicted maternal sensitivity to anger at entry and remained a significant predictor after entry of the interaction term, $\beta = .36$, $p < .01$. Less educated mothers responded less sensitively to their children's anger. As expected, maternal and paternal control interacted to predict maternal sensitivity to anger. As shown in Figure 1, when maternal control was low, paternal control was positively associated with maternal sensitivity to anger (i.e., sensitivity increased as paternal control increased) whereas when maternal control was high, paternal control was negatively associated with maternal sensitivity to anger (i.e., sensitivity decreased as paternal control increased). Alternately, as shown in Figure 2, when paternal control was low, maternal control was positively associated with maternal sensitivity to anger whereas when paternal control was high, maternal control was negatively associated with sensitivity to anger. These results suggest a cumulative negative effect of having two high- or two low-controlling parents on maternal sensitivity to anger and support the view that moderate control by parents during childhood may be optimal in relationship to later sensitivity. No comparable moderating effect was apparent when maternal sensitivity to fear was regressed on maternal control, paternal control, and their interaction, $\beta = .17$, n.s.

Next, in a post hoc attempt to explain the association between the Maternal Control \times Paternal Control interaction and maternal sensitivity to anger, the potential mediating effect of anger control was tested. Using the regression method recommended by Baron and Kenny (1986), no mediating effect was found. Maternal Control \times Paternal Control continued to predict maternal sensitivity to anger as a trend with anger control included in the regression equation,

$\beta = -.27, p < .10$, and anger control was not associated with maternal sensitivity to anger controlling for the interaction, $\beta = .23$, n.s.

Table 3. Mediated Multiple Regression Analysis Results

Predictor	Mediator	Criterion	Predictor → Mediator				Predictor → Criterion				Predictor + Mediator → Criterion				Model	
			β	R^2	F	df	β	R^2	F	df	β_{med}	β_{pred}	R^2	F		df
Maternal Care	Depression	Sensitivity to Fear	-.30*	.09	4.72*	1, 50	.25 <i>t</i>	.04	3.26 <i>t</i>	1, 50	-.19	.19	.06	2.56	2, 49	N
Maternal Care	Trait Anger	Sensitivity to Fear	.36* *	.11	7.30* *	1, 50	.25 <i>t</i>	.04	3.26 <i>t</i>	1, 50	-.29* *	.14	.10	3.80* *	2, 49	F

Note. β is standardized β ; R^2 is adjusted; F=fully mediated model; N=no mediating effects. $t p < .10$. * $p < .05$. ** $p < .01$.

Table 4. Hierarchical Regressions Predicting Maternal Sensitivity to Anger

Predictors	β	R^2
Maternal Education	.35*	
Maternal Control	-.02	
Paternal Control	.07	
Maternal Control × Paternal Control	-.31*	
Total Model		.13*

Note. β is the standardized regression coefficient at entry for main effects and after all main effects have been entered for the interaction. R^2 is adjusted; $N = 52$. * $p < .05$.

DISCUSSION

Mothers' Childhood Histories of Care and Control and Sensitivity in Toddlerhood

Mothers with a history of care and acceptance from their parents during childhood were more sensitive to their own 2-year-old children when they expressed fear than were mothers with a history of low care. This is consistent with prediction and with the attachment theory perspective that early experiences with caregivers influence the development of internal working models which affect the manner in which one responds to subsequent events (Bowlby, 1973). Mothers with a childhood history of care are likely to be more empathic, less likely to interpret their distressed infant as rejecting them, and may have a repertoire of sensitive behavioral responses through modeling that increases the likelihood that they will deliver a timely, comforting, and reassuring response to their toddlers' expressions of fear (Fonagy, Steele, Moran, Steele, & Higgitt, 1993; Ungerer, Sygall, Dolby, & Marvin, 1999; Zeanah & Barton, 1989).

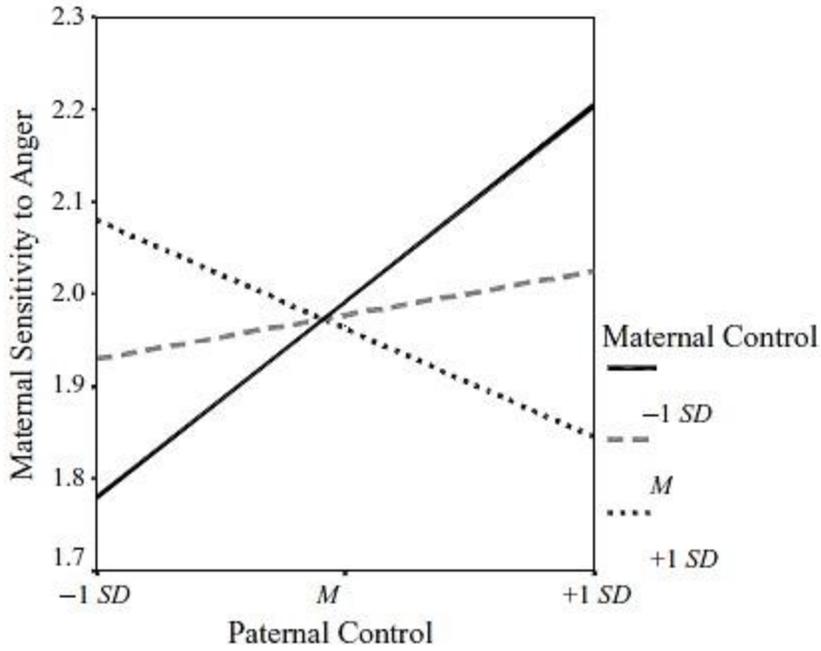


Figure 1. Moderating effect of maternal control on the association between paternal control and maternal sensitivity to anger.

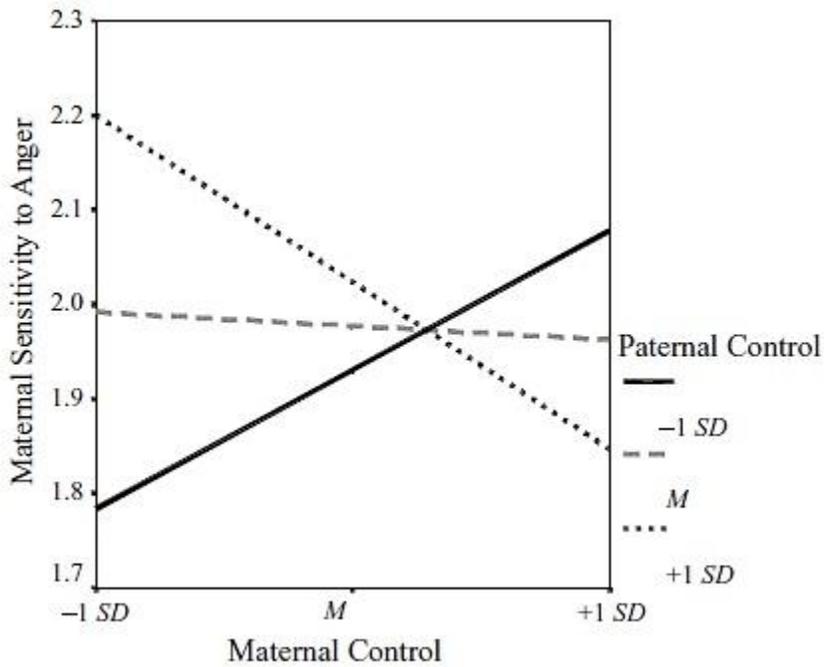


Figure 2. Moderating effect of paternal control on the association between maternal control and maternal sensitivity to anger.

Also consistent with prediction, mothers with a history of high or low control by their parents during childhood were less sensitive to their own 2-year-old children in contexts in which they expressed anger or frustration than were mothers with a history of moderate control. Notably, this effect was apparent as an interaction of maternal and paternal control rather than as a simple main effect of control exercised separately by either parent. Curvilinear effects were tested separately for mother control and for father control in relationship to sensitivity to anger, and none were found. Negative effects of high and low control on mothers' sensitivity to their toddler's anger or frustration were cumulative, apparent only when mothers remembered *both* of their parents as highly controlling, or alternatively, when they remembered *both* parents as exercising little control during childhood. A daughter of two highly controlling parents may develop a model of herself as incompetent or nonautonomous, experience the world as though she is being controlled, and thus respond negatively to her toddler's early assertions of independence as though the toddler is attempting to control her. Alternately, two low-controlling parents may have failed to provide the guidance and limit setting necessary for their daughter to develop a sense of competence and mastery, thus negatively impacting her ability as a mother to respond sensitively to her toddler's frustration during early attempts at mastery.

In contrast, when mothers remembered their mothers as exercising little control, they remained sensitive towards their toddler's anger and frustration *if* they remembered their fathers as providing relatively high control during childhood (Figure 2). In the absence of an optimally controlling mother, paternal guidance and limit setting may have protected their daughters from unnecessary early experiences of failure in attempts to master the environment and, thus, from arbitrary experiences of doubt and shame. Alternatively, less controlling mothers may have modulated the impact of overcontrolling fathers (Figure 1), with the result that as children, the mothers in this study experienced a moderate and developmentally appropriate level of parental control. Apparently, mothers construct working models of control from their overall experience of parental control, in which parents balance each other by compensating for too much or too little control by the other parent.

Mediating Effects of Maternal Depression and Maternal Anger

We were interested in this study not only in the associations between remembered experiences of care and control in childhood and mothers' sensitivity to their own children but also in the emotional processes that might explain these effects. We had reasoned that maternal depression would mediate between remembered experiences of care and maternal sensitivity whereas maternal anger would mediate between remembered experiences of control and maternal sensitivity. Instead, the results suggest a more complex view of this process than what we had originally envisioned.

As expected, mothers who remembered their parents as highly caring during childhood reported fewer depressive symptoms when their children were 2_{1/2} years old. These findings are consistent with Gotlib et al. (1991) and Crockenberg and Leerkes' (2003) findings that parental acceptance assessed prenatally predicted mothers' postpartum depressive symptoms, and extend these findings to depressive symptoms experienced by mothers more than 2 years after birth. But contrary to prediction, depression did not mediate between a remembered childhood history of care and maternal sensitivity to fear. It may be that during the "terrible twos," anger is the more

dominant maternal emotion linked to maternal sensitivity given provocation by the 2-year-old who is attempting to resolve his or her own autonomy issues. Alternatively, the absence of a mediating effect of depression may reflect low power associated with the sample size and the restricted range of depressive symptoms in this sample. In a larger sample, with more mothers with symptoms in the clinical range, anger and depression may serve as alternative pathways from a childhood history of rejection to less sensitive maternal behavior.

Although not anticipated, mothers' trait anger mediated the association between a remembered history of care and maternal sensitivity to fear. That mothers who remembered their parents as highly caring during childhood also would report less trait anger during the toddler period makes sense when we consider the different types of adult attachment relationships identified using the AAI. Adults classified as Preoccupied with the AAI often appear angry, confused, and conflicted by a strong desire for intimacy, coupled with high fear of rejection that results from a basic belief that significant others are unavailable and insensitive to their needs. Feeling angry about perceived rejection may protect some mothers from identifying and experiencing more vulnerable emotional states such as feeling sad, unworthy, or hopeless, and mothers for whom anger is protective may be especially insensitive to their children's fear because it raises feelings that their anger protects against (Bretherton, 2000; Cassidy, 1994; Fraiberg, Adelson, & Shapiro, 2003). As toddlers attempt to increase the distance between themselves and their caregivers and assert their capacity to say "No," they may elicit feelings of rejection and thus angry responses from predisposed mothers. It follows that mothers who report low care during childhood might well report intense trait anger, and that maternal anger would mediate between a childhood history of care and mothers' sensitivity to their own children.

Also contrary to expectation, maternal anger did not mediate between remembered parental control and maternal sensitivity to their child's anger. Mothers who remembered their parents, especially their fathers, as highly controlling during childhood reported more anger when their own children were 2 years old. But maternal trait anger was not associated with a mother's sensitivity to her child's anger and frustration. Rather, the extent to which mothers *controlled* their anger *was* positively associated with their sensitivity to toddler anger, consistent with the conceptual model on which the study was based. Although a mother may feel angry, it is how she manages her anger that has a direct impact on her sensitivity to her own child's anger. However, mothers' control of anger was *not* associated with their childhood history of control, neither as exercised by either parent separately nor with their interaction, which had predicted maternal sensitivity to anger.

The absence of a mediating effect of either maternal anger or anger control requires some explanation about the process by which the Maternal Control \times Paternal Control interaction operates. One possibility is that less sensitive mothers adopt their parents' beliefs about control and their controlling behaviors through modeling rather than through an emotionally mediated process. Mothers whose own parents were controlling may experience themselves as neither autonomous nor competent, and thus simply emulate their parents' beliefs and practices rather than question "the rules" or develop their own ideas about limit setting.

Maternal Education

Consistent with earlier findings (Biringen et al., 2000; Sampson & Laub, 1994), less educated mothers responded less sensitively to their children's anger. Increases in education may improve parents' perspective on their lives, enhance their own cognitive and language skills, and help to increase feelings of mastery and competence. Education also may be a marker for greater knowledge about childrearing and child development, and may be especially necessary in responding to child anger, an emotion that is less likely to elicit an empathic response from mothers than is fear and may require effort on their part to overcome a tendency to respond in kind. The knowledge that expressing anger towards a child is likely to escalate his or her frustration and increase the likelihood of a power struggle, as reported in scholarly reports (e.g., Crockenberg & Litman, 1990) and in lay publications on parenting (Acredolo & Goodwyn, 2002), may help mothers to modulate their own anger in responding to their child's anger.

Limitations of the Study

Several limitations of the study should be noted. First, variance associated with having mothers as the source of all data could explain or partially explain the results. However, although mothers reported their behavior with their children using the diary checklist, others who were blind to other data rated the constellation of behaviors as more or less sensitive, introducing a degree of independence to the outcome measures of sensitivity.

Second, to further clarify the meaning of associations between childhood history, depression, anger, and maternal sensitivity, a measure such as the AAI, which assesses the coherence with which mothers view and describe early relationships with parents, would be useful. As noted earlier, the PBI measure of childhood history focuses only on the quality of care and control experiences with caregivers, and not on how mothers come to view and integrate those experiences over time. If AAI classifications were linked to specific patterns of childhood histories of care and control, we might be able to explain why mothers with those developmental histories are insensitive in different ways, and thus further inform efforts to develop intervention strategies tailored to specific mothers.

Third, the current findings are based on a relatively small, low-risk sample. The conceptual model should be tested in a larger sample that offers greater statistical power, and thus an increased probability of detecting hypothesized differences if they exist. As noted, the lack of anticipated mediating effects may be due to the small sample size, limited statistical power, and the relatively limited range of maternal depressive symptoms.

Clinical Implications

With a low-risk community sample, we demonstrated that maternal anger mediates between a mother's history of parental care and acceptance and her sensitivity to her own child's fear, and that mothers' conjoint experiences of over- and under control with mothers and fathers are linked with their sensitivity to their children's anger. Evidence that a mother's perceived history of control with parents is related to her sensitivity to her 2-year-old's anger and frustration extends current thinking about what aspects of relationship history affect maternal sensitivity. It may be that parents who together are either overcontrolling or undercontrolling of their child are insensitive to the child's needs for autonomy on one hand and for limit setting on the other, and

that these experiences are later linked to the child's sensitivity to her own children in situations that elicit or require some degree of control. These findings indicate the importance of considering a mother's experience of control with her mother and father, in addition to her experience of acceptance and loving care, in assessing the risks to her parenting during the toddler period. This information could be especially useful in designing support services for parents and in assessing potential foster and adoptive families in view of the challenges they are likely to face during the second and third years of their children's lives.

End Note:

¹ Only data from the Trait Anger, Anger-In, Anger-Out, and Anger Control subscales were included in preliminary analyses because of their conceptual relevance to the proposed hypotheses (Cronbach's α s=.73, .85, .70, and .82, respectively). To reduce the number of variables, correlations were computed between these four STAXI subscales (Trait Anger, Anger-In, Anger-Out, and Anger Control) and between maternal sensitivity outcome variables. Anger-In did not correlate with any other STAXI subscales or with any maternal sensitivity outcome variable, and hence was dropped. Trait Anger correlated positively with Anger-Out, $r(48)=.58, p<.001$, and negatively with Anger Control, $r(52)=-.46, p<.01$, which also correlated negatively with Anger-Out, $r(48)=-.45, p<.01$. However, as shown in Table 2, Trait Anger correlated negatively with maternal sensitivity to fear at 2_{1/2} years whereas Anger Control correlated positively with maternal sensitivity to anger at 2_{1/2} years, suggesting that the experience of anger and the attempt to control anger may have separate pathways to maternal sensitivity. Thus, trait anger and anger control were retained as separate variables for inclusion in the model-testing regressions.

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