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Parsing the Construct of Maternal Insensitivity: Distinct Longitudinal Pathways Associated with Early Maternal Withdrawal

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Abstract

The current paper expands on Ainsworth's seminal construct of maternal sensitivity by exploring the developmental pathways associated with one particular form of insensitivity, maternal withdrawal. Drawing on longitudinal data from infancy to age 20 in a high-risk cohort, we highlight how maternal withdrawal over the first eight years of life is associated with child caregiving behavior and with maternal role confusion, as well as with features of borderline and antisocial personality disorders. We also present evidence for the specificity of this pathway in relation to other aspects of maternal insensitivity and other aspects of child adaptation. To illuminate these pathways we both review recent published work and report new findings on the middle childhood and adolescent components of these trajectories. Finally, we consider the implications for assessment of maternal behavior in high-risk samples and indicate directions for productive future work.

Keywords

Attachment; Maternal Withdrawal; Mother-Child Interaction; Adolescent-Parent Interaction; Role Confusion; Controlling-Caregiving Behavior; Parentified Behavior

Maternal hostility and intrusiveness in infancy have been repeatedly confirmed as important risk factors for child maladaptation, both as a correlate of disorganized attachment behavior in infancy (Lyons-Ruth, Bronfman, & Parsons, 1999; Lyons-Ruth, Connell, Grunebaum, & Botein, 1990;) and as a predictor of later child hostile behavior towards peers in kindergarten (Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman, 2010; Lyons-Ruth, Alpern, & Repacholi, 1993; van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999) and middle childhood (Lyons-Ruth, Easterbrooks, & Cibelli, 1997). However, in recent analyses of our longitudinal data on outcomes for at-risk infants in late adolescence, the predictive power of early hostile-intrusive maternal behavior has been considerably attenuated, and early maternal withdrawal has emerged as the single strongest predictor of an array of psychopathology in the transition to young adulthood (Dutra, Bureau, Holmes, Lyubchik, & Lyons-Ruth, 2009; Lyons-Ruth, Bureau, Holmes, Easterbrooks, & Brooks, 2013; Pechtel, Woodman, & Lyons-Ruth, 2012; Shi, Bureau, Easterbrooks, Zhao, & Lyons-Ruth, 2012). Therefore, it becomes a priority to understand

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the developmental pathways that lead from these early withdrawing interactions to disturbed later outcomes. The aim of this paper is first, to expand on Ainsworth's seminal construct of sensitivity-insensitivity by exploring the developmental pathways associated with one particular form of insensitivity, namely, maternal withdrawal, and second, to contrast the relational adaptations linked to withdrawal with outcomes associated with maternal hostility.

We will first consider why Ainsworth's construct of sensitivity has been a robust predictor of child attachment security in lower risk samples but has not been a strong predictor of disorganized attachment patterns in high-risk samples. We will then review our recent findings relating maternal withdrawal in infancy to antisocial behavior, borderline features, and recurrent suicidality in adolescence. Subsequently, we will present an overview of the relations between maternal withdrawal and child attachment behavior in infancy and middle childhood from our longitudinal data. In the final section, we report new data on maternal role confusion at age 20, assessed by both interview and self-report measures, and its relation to earlier maternal withdrawal and concurrent adolescent role-confused/caregiving behavior at age 20, using a recently validated measure of attachment disorganization in adolescence (Obsuth, Brumariu, Hennighausen, & Lyons Ruth, 2013). Finally, we will draw these strands together to describe pathways over time and to indicate gaps in our knowledge and fruitful directions for further work.

Ainsworth's Construct of Sensitivity-Insensitivity

Ainsworth (1969) beautifully described the essence of sensitive caregiving behavior, in the preamble of her scale by the same name:

The sensitive caregiver responds socially to [the baby's] attempts to initiate social interaction, playfully to his attempts to initiate play. She picks him up when he seems to wish it, and puts him down when he wants to explore. When he is distressed, she knows what kinds and degree of soothing he requires to comfort him—and she knows that sometimes a few words or a distraction will be all that is needed. On the other hand, the mother who responds inappropriately tries to socialize with the baby when he is hungry, play with him when he is tired, or feed him when he is trying to initiate social interaction (Ainsworth, 1969, p. 2; see also Ainsworth, Bell, & Stayton, 1974).

She identified the following components of sensitivity: “Sensitivity requires being aware of and correctly interpreting the infant's signals, and responding appropriately and promptly. A mother also needs to follow through with her responses, such as holding her infant long enough that he is comforted and does not immediately seek to be picked up again after being set down” (Ainsworth et al., 1974 p. 129).

It is less well known that Ainsworth also considered and created scales to assess aspects of maternal Cooperation versus Interference, Acceptance versus Rejection, and Accessibility versus Ignoring and Neglecting (Ainsworth, 1969; summarized in Ainsworth, Bell and Stayton, 1971). In her own words, a cooperative mother “seeks to guide rather than control the infant's actions whereas an interfering or intrusive caregiver may interrupt the infant's activity, and thus cause dysregulation” (Ainsworth, 1969, p. 3). Particularly relevant to the focus of this paper, the Acceptance—Rejection scale deals with the balance between the mother's positive and negative feelings about her baby, and her ability to integrate or resolve conflicting feelings whereas the Accessibility versus Ignoring and Neglecting scale, at the low end, reflects mothers who are too self-absorbed to pay meaningful attention to infants' signals.

Ainsworth paid particular attention to the difficulty in trying to distinguish rejection from ignoring and neglecting. She described rejection as consisting of maternal retaliation by deliberate ignoring of infant signals, although she noted that highly defended mothers who seem bland or emotionally detached may show no signs of either positive acceptance or hostility. This contrasts with the definition of ignoring and neglecting in which Ainsworth captures key elements of maternal withdrawal: “She [the mother] finds the demands implicit in the baby's signals an intolerable threat to her precarious balance. It is necessary, in order to hold herself together, to ‘tune out’ the baby's signals” (Ainsworth, 1969, p. 9).

Findings presented in the classic volume on *Patterns of Attachment* (Ainsworth, Blehar, Waters, & Wall, 1978) indicated that the Sensitivity scale applied to 5 4-hour observations from 9–12 months strongly distinguished mothers of children classified as secure and insecure in the Strange Situation Procedure (SSP). She had expected the other three scales to differentiate mothers of avoidant infants from those of ambivalent infants, but all four scales differentiated secure from avoidant and secure from ambivalent at or above the .01 level. In addition, Stayton, Hogan, and Ainsworth (1971) published a factor analysis on three of the scales, including sensitivity, acceptance, and cooperation, and found that a single factor defined those scales. Only in an exploratory analysis of the subgroups of the insecure classifications did notable differences emerge in maternal behavior, with mothers of A1 infants by far the most rejecting, and those of C2 infants the most ignoring or withdrawing. No attempt has ever been made to replicate these results on the insecure subgroups. However, this work suggested the utility of making further differentiations among insecure infants and Main and Solomon (1990) subsequently described a fourth classification for disorganized patterns of attachment behavior.

Following two decades of studies validating Ainsworth's construct of sensitivity, the NICHD Early Child Care Research Network (NICHD-ECCRN) conducted the largest investigation to date of sensitivity in mother-child relationships, assessing sensitivity repeatedly from infancy to age 15. A composite measure of maternal sensitivity was used at each age. At 6 and 15 months, the sensitivity composite included ratings for maternal sensitivity to child non-distress, intrusiveness [reversed], and positive regard. At older ages, the sensitivity composite reflected the sum of ratings for supportive presence, respect for autonomy, and hostility [reversed] (NICHD ECCRN, 1997; 2001a). This composite was used in analyses because factor analyses of the maternal behavior scales at each age yielded a single main factor, with the scales for sensitivity to child non-distress, positive regard, supportive presence, and respect for autonomy anchoring the positive pole of the factor and hostility and intrusiveness anchoring the negative pole (unpublished data; Margaret Tresch Owen, personal communication, August 9, 2013). In support of Ainsworth's initial work, this sensitivity composite has been consistently related to security of attachment assessed at 15 and 36 months (NICHD ECCRN 1997; 2001a), as well as to a variety of later child outcomes (e.g. NICHD ECCRN, 2001b; 2004; 2006). Notably, the sample recruited by the NICHD ECCRN was largely middle income, as was Ainsworth's original sample.

As attachment researchers began to investigate children at high-risk for disorder due to serious maternal and family risk factors, the development of more differentiated scales for maternal behavior that would better distinguish among varieties of disturbed parenting became increasingly important. Most importantly, as disorganized attachment classifications were identified and related to a number of later deviations in development (Lyons-Ruth & Jacobvitz, 2008), the assessment of maternal sensitivity-insensitivity did not prove specific and differentiated enough to be a robust predictor of disorganized infant attachment. This was noted in a meta-analysis by van IJzendoorn and colleagues (1999), as well as in the large NICHD Study of Early Child Care and Youth Development (SECCYD) study (NICHD ECCRN, 1997). In the SECCYD, the effect size relating sensitivity and

disorganization was $r = .06$, n.s., and for 11 studies of sensitivity and disorganization in the meta-analysis by van IJzendoorn and colleagues (1999) the combined effect size was also small, $r = .10$, $p = .004$.

The puzzling finding that sensitivity is a stronger correlate of attachment security than of attachment disorganization has not received a great deal of discussion. However, the positive pole of sensitivity captures a coherent and integrated parental stance of responding promptly and appropriately to infant signals, a stance that is particularly prevalent and thus is easily recognizable and codable. In addition, based on the factor analyses cited above, coders seem to spontaneously rate hostile and intrusive parental responses as the most insensitive opposite of the construct of sensitivity (NICHD ECCRN, 1997; 2001a). Thus, a sensitive-to-hostile factor seems well captured in current studies.

Yet, among parents exposed to traumatic experiences disturbed caregiving can be manifested in a number of very different ways that many coders are unlikely to have encountered through general life experience and, more importantly, for which no separate scales have been available. When sensitive or responsive behaviors become mixed with indicators of fear, threat, disorientation, role-confusion, or withdrawing behavior, it becomes necessary to create assessments that capture these behaviors. However, since Ainsworth developed her scales, few developmental researchers have taken up the challenge of developing assessments of these other forms of caregiving disturbance and their potential associations with later child outcomes. Conceptually, we regarded it as very likely that the effects of maternal withdrawal, disorientation, or role-confusion would be different from the effects associated with hostile and interfering behavior. However, the potential for such differential outcomes associated with different forms of parenting disturbance has been surprisingly under-conceptualized and under-studied in work with high-risk samples (but see Bailey, Moran, Pederson, & Bento, 2007).

In one notable exception using a high-risk sample of adolescent mothers, Bailey, Moran, Pederson and Bento (2007) conducted a Q-factor analysis on items of their Maternal Behavior Q-Set (Pederson, Moran & Bento, 1998) that yielded three factors: 1- Sensitive; 2- Disengaged; 3- Nonsynchronous. Strong associations were found between mothers' Disengaged interaction and infant disorganized attachment. This work supports the need for a much more differentiated coding system for capturing varieties of 'insensitive' parenting in a high-risk cohort.

Assessment of Maternal Behavior Associated with Infant Disorganization

Observations of the disturbed interactions engaged in by mothers of disorganized infants led Main and Hesse (1990) to hypothesize that parental frightened or frightening behavior was etiologically tied to infant disorganization. Subsequently, Lyons-Ruth, Bronfman, and Parsons (1999) advanced a somewhat broader hypothesis that infant fear that is not directly provoked by the parent's frightened or frightening behavior may still lead to infant disorganization if the parent fails to respond to the infant's need for comfort. These failures to comfort can occur in a variety of ways. For instance, the parent can give contradictory responses to the infant's cues or give self-referential responses that focus on the parent's needs rather than the infant's needs. The parent also can withdraw and respond in a cursory or reluctant manner or fail to respond altogether.

To operationalize this broader conceptualization and capture the variety of ways that disturbed parenting can manifest in high-risk samples, the Atypical Maternal Behavior Instrument for Assessment and Classification (AMBIANCE; Bronfman, Madigan, & Lyons-Ruth, 1992–2009) was developed. It included not only the Main and Hesse (1992) inventory

of frightened or frightening behaviors but also a wider range of parental behaviors observed in high-risk samples, including contradictory communications and withdrawing behavior as well as a broader array of negative-intrusive and role-confused behaviors. The five dimensions of disturbed maternal behavior assessed by the coding system are shown in Table 1. In subsequent sections of this paper, we will review our longitudinal findings associated with this coding system, drawing together the now numerous converging threads that paint a picture of the developmental pathway associated with early maternal withdrawing behavior.

The Family Pathways Study

The developmental patterns summarized in this report emerged in analyses of data from the Family Pathways Study, a multi-wave, multi-method study of the development of infants at social risk, with assessments from the first year of life to age 20. Given the large number of measures mentioned here, in what follows readers are referred to the relevant publications for detailed descriptions of methods. Here we include only a brief description of the participants and attachment assessments.

The infant sample consisted of 76 infant–mother dyads from low-income families. To participate in the study, all families were required to be below the official federal poverty level. Of those dyads, approximately half ($N = 41$; 18 girls) were clinically referred to the study for home visiting services by health or social service agency staff because of concerns about the quality of the parent–infant relationship. The remaining families ($N = 35$; 15 girls) were recruited from the same low-income communities and closely matched to referred families on demographic risk factors. Families in the community group did not have documented psychiatric histories, history of abuse or neglect of children, or obvious parenting difficulties during a 1-hour home observation. The sample was 81% Caucasian, 40% of mothers were not high school graduates, and 49% were single parents (Lyons-Ruth, et al., 1990).

At the middle childhood follow-up (ages 7 and 8), 56 families were relocated and contacted (74%). Fifty-one agreed to participate (67%), and 5 refused participation. Of the 51 participating families, 8 families' videotapes were not available due to equipment failure, scheduling difficulties, or having moved too far from the research lab. Thus, 43 families contributed to the middle childhood data in this report. The families who participated in the study in middle childhood were similar to those who did not participate on all demographic, maternal, and infancy measures reported on here except for clinical referral, with clinically referred families somewhat less likely to come back for the middle childhood follow-up (Bureau, Easterbrooks, & Lyons-Ruth, 2009).

For the adolescent follow-up (age 20) the retention rate from infancy was again 74% (56). Of the 76 families seen in infancy, 14% (11) could not be located; 11% (7) refused; and 3% (2) lived overseas. Families assessed in adolescence did not differ from families not assessed on any infancy or childhood outcome measure (effect sizes (ϕ , η , or τ) = $-0.15 - .16$) (Lyons-Ruth, Bureau, et al., 2013; Obsuth et al., 2013).

Except where noted below, all observations of maternal disrupted communication and infant attachment patterns or child attachment behavior took place in the laboratory. In infancy the standard Strange Situation Procedure (SSP) was used (Lyons-Ruth et al., 1990) and in middle childhood the Modified SSP was used following the procedure suggested by Main & Cassidy (1988), consisting of a one-hour mother-child separation followed by a five-minute reunion. The laboratory assessment of attachment-related interaction between adolescent and parent, using a new coding system for Goal-Corrected Partnership in Adolescence (GPACS), is described later in this report. In infancy, construct validity of the AMBIANCE

was assessed in relation to mother-infant interaction assessed during a 40-minute unstructured observation in the home (see Lyons-Ruth et al., 1990, for description of home coding system).

Adolescent Psychopathology Associated with Early Maternal Withdrawal

In a series of recent papers, we examined maternal behavior in the lab in infancy as a predictor of antisocial personality disorder, borderline features, suicidality, and substance abuse in late adolescence (Figure 1; Shi et al., 2012; Lyons-Ruth, Bureau, et al., 2013; Pechtel et al., 2012). In each publication, all five dimensions of maternal behavior in infancy were evaluated as predictors of later psychopathology. However, only early maternal withdrawal was predictive of disorder in late adolescence. In addition, in relation to dissociation in young adulthood, the overall AMBIANCE score was a robust predictor of dissociation, and maternal lack of involvement at home, but not hostile-intrusive behavior at home, predicted additional variance in dissociation (Dutra et al., 2009; see also Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997). Table 2 delineates the withdrawing profile as seen at 18 months.

Furthermore, the reports examining longitudinal predictors of borderline features, suicidality, dissociation, and antisocial symptoms all evaluated the potential mediation of this longitudinal prediction by experiences in later childhood, in particular severity of emotional, sexual, and physical abuse which occurred at high rates in this cohort and was also related to adolescent psychopathology (See Lyons-Ruth & Block, 1996; Lyons-Ruth, Yellin, Melnick, & Atwood, 2005). However, severity of childhood abuse did not mediate the prediction from early maternal withdrawal to any of these later psychopathologies. Instead, maternal withdrawal at 18 months remained a significant and strong independent predictor of all outcomes. Figure 2 displays the mediation analysis linking both maternal withdrawal and childhood abuse to the extent of borderline personality disorder features at age 20. Similar analyses are presented in other papers regarding suicidality, antisocial personality disorder, and dissociation.

We also examined whether the child's disorganized attachment classification might mediate the prediction associated with early maternal withdrawal. Attachment disorganization in infancy was not a strong predictor of outcomes in any of these analyses. In middle childhood, the extent of disorganized/controlling attachment behavior, as rated on 7-point scales from a five-minute reunion after a one hour separation (Bureau, et al., 2009), was predictive of both borderline features and antisocial behavior by age 20 (Lyons-Ruth, Bureau, et al., 2013; Shi et al., 2012). However, again mediation analyses indicated that the effects of early maternal withdrawal were independent of the extent of later child disorganized/controlling behavior.

In summary, strong and significant relations emerged in our data between early maternal withdrawal and an array of young adult psychopathologies associated with borderline and antisocial personality disorders in the standard psychiatric diagnostic system. In subsequent sections of the paper, we explore the child developmental pathways that are associated with this early maternal stance. In order to have a contrast point, at times we will compare aspects of development associated with withdrawal to aspects associated with maternal negative-intrusive behavior. Because other types of maternal behavior in infancy did not have the predictive strength of these two forms, we will not treat them further here. These comparisons between withdrawal and negative-intrusive behavior indicate that we can now move beyond simply documenting that negative early interactions are associated with negative later outcomes. Instead, the study of developmental psychopathology has matured

to the point where we can examine the differential effects of different types of early interaction on the child's development.

Separating Longitudinal Pathways Associated with Maternal Withdrawal and Maternal Hostility During Infancy

Construct and discriminant validity of maternal withdrawal and maternal hostility during infancy

In the initial report on the AMBIANCE (Lyons-Ruth, Bronfman, & Parsons, 1999), maternal negative-intrusive behavior and maternal withdrawal were assessed for construct validity in relation to similar aspects of mother-infant interaction assessed during a 40-minute unstructured observation in the home. Table 3 displays the significant associations between maternal behavior observed at home and in the lab. Validity has also been demonstrated in relation to clinical referral by service providers (Lyons-Ruth, Bureau et al., 2013). The relative risk for clinical referral by outside service providers predicted from maternal withdrawal in the lab was $OR = 1.5$. This indicates that for *each additional withdrawing behavior* displayed by mothers in relation to their infant's attachment cues in the SSP, the likelihood of clinical referral by service providers was increased by 50%. These data lend both ecological validity and clinical urgency to the need for better identification of withdrawing forms of maternal behavior in infancy.

Infant attachment classifications associated with maternal withdrawal and negative-intrusive behavior

It is not widely recognized that 52% of disorganized infants continue to approach the caregiver, seek comfort, and cease their distress without clear ambivalent or avoidant behavior (Main & Solomon, 1990; NICHD Study of Early Child Care and Youth Development, K. McCartney, personal communication, October 13, 2003). This occurs despite the presence of pronounced conflict behavior, such as stopping and starting on the way to the parent (Table 4). This pattern has traditionally been labeled D-Secure behavior but we use the term D-Approach for greater clarity, because we regard the secure term as misleading (see below). The other 48% of disorganized infants *do show* avoidant or ambivalent behaviors, in addition to disorganized behaviors (Table 4). This group has traditionally been labeled D-Insecure. For greater clarity, here we will refer to this group as D-Avoidant/Ambivalent. To date, few hypotheses have been advanced regarding the mechanisms underlying this striking difference among infants who display disorganized behavior.

In the initial infancy findings from our study, differences in maternal behavior in the lab were associated with whether disorganized infants continued to approach their mothers (D-Approach). Mothers of D-Approach infants were significantly more withdrawing but had low rates of negative-intrusive behaviors. In contrast, mothers of D-Avoidant/Ambivalent infants displayed significantly more negative-intrusive and self-referential behavior (Lyons-Ruth, Bronfman, & Atwood, 1999; Figure 3).

In addition, and important to the study of high-risk samples, David and Lyons-Ruth (2005) found that as maternal withdrawal in the SSP became more pronounced, infant approach behaviors during the SSP also became more pronounced. This resulted in the unexpected finding that as maternal withdrawal became more extreme, the infant's approach behavior became more likely to fit the coding criteria for the secure (and non-disorganized) classification. Thus, among clinically referred infants, both those classified D-Approach and those classified fully Secure had mothers with significantly higher levels of withdrawing behavior compared to all other infants (maternal withdrawal means: Secure = 5.50 (SD

4.93), D-Approach = 5.25 (SD 2.82), Avoidant = 1.33 (SD 1.21), D-Avoidant/Ambivalent = 2.92 (SD 2.40), $F(3,33) = 2.89, p = .05$). This tendency to approach a withdrawing mother was seen regardless of infant gender (David & Lyons-Ruth, 2005).

Therefore, a different theoretical lens may be needed for understanding responses to the attachment threat embodied in maternal withdrawal compared to that involved in maternal hostile or threatening behavior. When maternal behavior is more frightening, negative, or intrusive, infants exhibit the more flagrant approach and avoidance conflict behaviors that are particularly prominent in the D-Avoidant/Ambivalent subgroup. However, when the mother withdraws from attachment cues, infants may activate contact-seeking behavior and suppress or control the experience or expression of fearful or hostile affects that would lead them to fight or flee from the parent. In evolutionary terms, this makes adaptive sense, because the infant cannot afford to allow the parent to withdraw from providing care.

In a related line of thought, Taylor et al. (2000) contended that the activation of affiliative or attachment behaviors may also be an adaptive response to fear and threat, theorizing that females would be more prone to activate 'tend or befriend' responses in the face of threat, while males would be more likely to activate fight or flight responses, but we found no support for gender differences in infant response to maternal withdrawal (David & Lyons-Ruth, 2005).

Here we contend that rather than being gender-related, 'tend or befriend,' and 'fight or flight' behaviors are activated by different classes of threat. Specifically, we advance the view that the response to the threat of loss or abandonment is to suppress negative affect toward the abandoning attachment figure and to increase the display of attachment behavior. In contrast, the threat of physical attack implicit in hostile or physically intrusive behavior activates fight or fright behavior.

In support of the view that approach behavior can be a response to the threat of abandonment, we also found that D-Approach was predictive of long-term psychopathology. In relation to later suicidality, D-Approach at 18 months of age was significantly predictive of recurrent suicidality or self-injury at 20 years of age (Lyons-Ruth, Bureau, et al., 2013). Disorganized avoidant or ambivalent behavior was not predictive. This longitudinal prediction from D-Approach infant behavior to suicidality in adolescence underscores the serious consequences associated with this subtype of infant disorganized attachment behavior.

This longitudinal prediction of recurrent suicidality or self-injury also enlarges our view of the parent-infant dynamics that may be set in motion by early maternal withdrawal from the infant's attachment cues, as coded in the SSP at 18 months of age. The model that emerges is of a mother who withdraws from close contact coupled with an infant who continues to approach the mother for soothing, setting the stage for a potentially escalating transactional process in which the infant's need for soothing may provoke parental withdrawal, which in turn increases the child's distress and need to involve the parent. Such a developmental trajectory could lead to profound child distress and hopelessness culminating in recurrent suicidal thoughts and self-injury as one way of magnifying affective signals and attempting to elicit care from unavailable attachment figures.

These findings, then, raise concern that if maternal withdrawal intrinsically activates more pronounced approach behavior, current assessments of infant attachment may misjudge the security of infants of very withdrawing mothers in high-risk samples, as noted by David and Lyons-Ruth (2005). This would further produce a pattern of results in which assessments of the mother's behavior in high-risk samples would be much stronger predictors of later

outcomes than assessments of infant attachment behavior, due to the error introduced by the secure-appearing nature of some infant approach behavior.

Maternal Withdrawal in Infancy and Maternal and Child Behavior in Middle Childhood

As disorganized infants and toddlers make the transition into the preschool years, the signs of conflict, apprehension, or helplessness characteristic of disorganized attachment strategies in infancy often give way to various forms of controlling behavior toward the parent when assessed in a Modified SSP (Main & Cassidy, 1988; Moss, Cyr, Bureau, Tarabulsy, & Dubois-Comtois, 2005; NICHD SECCYD 2001a; Wartner, Grossmann, Fremmer-Bombik, & Suess, 1994). Controlling behaviors are manifest in either a caregiving or a punitive fashion. Children classified as Controlling–Punitive use “authoritarian” behavior with the caregiver that may include harsh commands, verbal threats, and occasional physical aggression toward the parent. Children classified as Controlling-Caregiving direct the parent’s activities and conversational exchanges by structuring interactions in a helpful and/or emotionally positive manner. Solomon, George, and De Jong (1995) suggested that such behaviors function to control a parent who is the source of unintegrated fears thereby regulating the child’s own internal state and behavior. Based on the two subtypes of disorganized behavior observed in infancy and their differential relations to withdrawing maternal behavior, Lyons-Ruth, Lyubchik, Wolfe, and Bronfman (2002) further hypothesized that child controlling-caregiving attachment patterns might be differentially associated with a more helpless and withdrawing maternal stance in infancy, while child controlling-punitive classifications might be associated with a more hostile and intrusive maternal stance.

In two recent papers, we have now assessed this hypothesis, and our earlier prediction that infants of withdrawing mothers might develop controlling-caregiving attachment strategies was indeed borne out in the middle childhood data (Bureau et al., 2009). As shown in Table 5, maternal withdrawal in the SSP at 18 months was a robust predictor of controlling-caregiving attachment in middle childhood, as assessed in the standard modified SSP. Contrary to prediction, early maternal negative-intrusive behavior alone was not a strong predictor of controlling-punitive attachment behavior in middle childhood. However, *overall* disrupted maternal behavior in infancy did significantly predict controlling-punitive attachment behavior in middle childhood. In contrast to the prediction based on maternal behavior, the *infant’s* disorganized attachment classification or subtype was not a strong predictor of controlling or disorganized attachment behavior by middle childhood.

Maternal and Child Behavior in Middle Childhood

The concurrent relations between maternal emotional availability and child attachment behavior in middle childhood were also assessed (Easterbrooks, Bureau, & Lyons-Ruth, 2012). The Emotional Availability Scales (Biringen, Robinson, & Emde, 1993) yield assessments of three aspects of maternal interaction: overall sensitivity, hostility, and passive-withdrawn behavior.

Again, when specific forms of insensitivity were examined, differential relations to forms of child attachment behavior emerged. Children of hostile mothers were significantly more likely to show punitive behavior, but child punitive behavior showed no significant relation to maternal passive-withdrawn behavior. In contrast, child caregiving behavior was robustly associated with maternal passive-withdrawn interaction in middle childhood ($r = .35, p < .05$), as in infancy. In addition, maternal passive-withdrawn interaction was marginally associated with child behavioral disorganization ($r = .31, p < .06$), suggesting that children

of passive-withdrawing mothers were more disorganized as well as more caregiving. In addition, in middle childhood, child caregiving behavior was robustly associated with concurrent maternal hostility (Easterbrooks et al., 2012). However, as noted earlier, if the mother was hostile *in infancy* there was no tendency for the child to become caregiving (Table 5). Thus, controlling-caregiving behavior in middle childhood was preceded by maternal withdrawal in infancy, but by middle childhood was mixed with behavioral disorganization and was accompanied by both maternal passive-withdrawal and maternal hostility.

Also notably, when teacher reports of total child behavior problems on the Child Behavior Checklist were examined, overall maternal insensitivity in middle childhood was associated with total problems ($r = .35, p < .05$). However, when the two different forms of insensitivity were distinguished, only maternal passive-withdrawal was associated with behavior problems ($r = .41, p < .01$), while maternal hostility was not significantly related ($r = .17, n.s.$). The same pattern occurred in relation to externalizing problems alone ($r = .38, p < .05$ vs. $r = .06, n.s.$). There were no significant relations between maternal emotional availability and teacher-reported internalizing problems on the CBCL (Easterbrooks et al., 2012).

Early Maternal Withdrawal and Parental Role-Confusion

Given the specificity of these relations between maternal passive-withdrawal and child controlling-caregiving behavior, we conducted an additional series of analyses examining predictors of adolescent-mother role confusion at age 20. Participants at age 20 included the 56 families from the longitudinal cohort on which earlier findings were based, as well as an additional 65 families from low-to moderate income families from the community (see Obsuth, et al., 2013).

An important focus of the adolescent study was to develop and validate an observational measure of attachment in adolescence. Adolescent-parent interaction was observed during a 5-minute reunion episode and a 10-minute conflict discussion. Ten rating scales were developed to code both collaborative and disorganized aspects of parent and adolescent behavior (Goal-Corrected Partnership in Adolescence Coding System (GPACS); Obsuth et al., 2013). A Confirmatory Factor Analysis (CFA) on the 10 rating scales of the GPACS yielded the four dyadic factors shown in Figure 4, including one factor for collaborative interaction and three factors indexing the three aspects of disorganized/controlling behavior seen among younger children. Reliability and validity data on these factors are available in Obsuth et al. (2013). Models that specified only one factor (collaborative/non-collaborative) or two factors (collaborative/disorganized) resulted in a significantly poorer fit to the data.

As shown in Figure 4, the CFA indicated that adolescent and parental behaviors were related in a coherent fashion. Specifically, collaborative behaviors by parent and adolescent were correlated with one another, punitive behavior by parent and adolescent were correlated, and disoriented behavior by parent and adolescent were correlated. However, adolescent caregiving behavior was associated with the parent's abdication of a parental role, and not with parental collaborative behavior toward the adolescent. So the first important finding of the study was that adolescent and parent behavior exhibited several distinct patterns of underlying dyadic structure.

Mothers in the longitudinal group were also administered two interview/self-report measures of maternal role-confusion in the adolescent follow-up. The first measure was the Caregiving Helplessness Questionnaire (CHQ; George & Solomon, 2011), a structured maternal self-report measure assessing mothers' experienced helplessness in relation to the

demands of parenting. The second was the Experiences of Caregiving Interview (ECI; George & Solomon, 1996), coded with a newly developed coding system for the degree of maternal role-confusion on the ECI (Parental Assessment of Role Confusion (PARC); Vulliez-Coady, Obsuth, Torreiro Casal, Ellertsdottir, & Lyons-Ruth, 2013).

We first explored the concurrent associations between the interview/self-report measures of maternal role-confusion and role-confusion as directly observed in the dyadic interaction between mother and adolescent. Both indices of maternal role-confusion were significantly correlated with dyadic role-confusion in observed interaction, but not with punitive or disoriented forms of interaction (Table 6).

We then examined longitudinal predictions from maternal behavior in infancy and middle childhood to the measures of role-confusion in late adolescence. Maternal withdrawal in infancy was a significant and specific predictor of maternal role-confusion on both the PARC and the CHQ, with medium to large effect sizes over a 20-year period (Table 6). Maternal role-confusion in interaction in infancy, also coded with the AMBIANCE, was also a significant predictor of maternal role confusion in adolescence as coded by the PARC, but did not predict self-reported caregiving helplessness by the mother on the CHQ. In contrast, maternal hostility in infancy was unrelated to the mother's later role-confusion on either measure (Table 6).

When maternal behavior in middle childhood was examined, the same pattern of associations emerged, but did not reach significance with the smaller sample in middle childhood. Maternal passive-withdrawal was the strongest predictor of maternal role-confusion on both measures at age 20, with medium effect sizes. Maternal hostility in middle childhood did not predict maternal role confusion and, in fact, showed a negative correlation with both measures (Table 6).

Thus, a strikingly coherent construct of maternal role-confusion emerges across 20 years of multi-wave, multi-method assessments. In addition, these results underscore the specificity of the relation between early withdrawal and the mother's continued role-confused stance in adolescence, which is further related to the adolescent's controlling-caregiving behavior toward the parent.

Adolescent-Parent Role-Confusion and Adolescent Psychopathology

Finally, recent analyses further underscore the critical importance of adolescent-parent role-confusion in pathways to disturbed functioning. Role-confusion in parent-adolescent interaction was significantly related to overall borderline features in adolescence and was particularly strongly related to recurrent suicidality or self-injury (Lyons-Ruth, Brumariu, Bureau, & Holmes, 2013). In addition, role-confusion in parent-adolescent interaction accounted for independent prediction in both borderline features and suicidality beyond variance in these outcomes accounted for by abuse experiences (Lyons-Ruth, Brumariu, et al., 2013).

Disorientation in interaction during adolescence was also associated with both borderline features and suicidality (Lyons-Ruth, Brumariu, et al., 2013). However, these relations were weaker and disorientation was also related to severity of abuse. Punitive adolescent-parent interaction was unrelated to borderline psychopathology.

Summary and Discussion

The depth of the multi-wave, multi-method longitudinal assessments examined here yields a clear picture of a coherent developmental pathway related to early maternal withdrawal,

with maternal withdrawal at every age associated with concurrent child caregiving and maternal role confusion. Further, both maternal withdrawal and adolescent caregiving emerged as contributors to the pathways toward adolescent borderline and antisocial psychopathologies. The overall pattern of results from all waves of the study is presented in Figure 5.

The first important implication of the distinct developmental pathways emerging from these longitudinal analyses is that specially tailored scales are required to assess different forms of insensitivity. The positive pole of sensitivity describes a coherent and integrated internal working model of attachment relationships that allows the parent to hold both her own and her child's needs in mind and flexibly attend to both. However, the current work describes at least two, and possibly three, discriminable patterns of insensitive maternal behavior that have quite different correlates in infant, child, and adolescent adaptation. Thus, the implication of these findings is that it is helpful to elaborate our descriptions of the varied deviations observed in parental responses to infant and child attachment behavior, in order to further understand how they may be linked to distinct child adaptations and distinct forms of psychopathology in later development.

Maternal withdrawal may have been underassessed in previous work that has relied on global sensitivity scales that include multiple forms of insensitivity at the lower end of the scale. One problem that arises in assessing maternal withdrawal, in particular, is that it is more difficult to create scales for coding *absences* of expected behavior. Thus, rating scales need to include very specific descriptions of the types of structuring and responsive behaviors that are normative and expected for a given age group in a particular assessment context, so that any absence is noted and appropriately weighted.

A number of structuring and engaging parental behaviors were noted to be missing in infancy, and their absences were coded as part of the withdrawing dimension. These included not initiating interaction with the infant, not initiating comforting behavior, moving away rather than toward the infant while interacting, or interacting silently with the infant. However, in addition to such failures to structure and engage mothers often responded but in a hesitant, delayed, or cursory manner, as shown in Table 2. Finally, mothers who failed to initiate such interactions often *did* respond once the infant initiated and their infants often initiated relatively quickly. Thus, the mother's abdication of a structuring role in the interaction was often subtle and not equivalent to a failure to respond to the infant entirely. Additional description is available in Lyons-Ruth, Bronfman, and Atwood (1999). This was also true in middle childhood and adolescence, so that it was very important to carefully attend to whether parent or child was responsible for initiating, sustaining, and repairing any difficulties in the interaction over time.

Given the strength of early maternal withdrawal in predicting pathways associated with self-damaging behavior, more research is needed to examine the biological consequences of early withdrawal for the infant's regulation of stressful arousal. Self-injuring individuals are known to experience states of intense arousal, so that the long-term prediction associated with maternal withdrawal may be mediated in part through effects on the child's stress response system. Randomized animal models have shown that inattentive care in infancy can produce sustained enhancement of biological stress responses (Barr et al., 2003; Francis, Szeqda, Campbell, Martin, & Insel, 2003). Among human children, Bugental, Martorell, and Barraza (2003) found an association between maternal withdrawal and higher child cortisol levels (Bugental et al., 2003). In young adulthood, lack of perceived parental protection, but not lack of confiding, is associated with increased baseline cortisol levels (Lyons-Ruth, Choi-Kain, Pechtel, Bertha, & Gunderson, (2011). Further work is clearly needed to assess

stress responsiveness among children and adolescents in role-confused, caregiving relationships with parents.

An important caveat is that we cannot judge, based on correlational data, whether disturbances in parent-child relations are child adaptations to disturbances in parenting or parental adaptations to emerging child disturbance or both. Given the links between borderline and antisocial symptoms and genetic factors (Torgerson et al., 2000; Lyons-Ruth et al., 2007; Anguelova, Benkelfat, & Turecki, 2003), it is possible that a more stress-reactive child genotype would produce more persistent child contact-seeking which could lead in turn to increased caregiver withdrawal, particularly if parents themselves are genetically vulnerable to stress (White, Gunderson, Zanarini, & Hudson, 2003). One potential model that emerges is of a genetically stress-sensitive and contact-seeking infant coupled with a parent who withdraws from close contact, setting the stage for an escalating transactional process in which the infant's need for soothing may provoke parental withdrawal, which in turn increases the child's distress and need to involve and control the parent.

The analyses presented here rely on a relatively small sample, particularly in middle childhood, so these results should be viewed as generating, rather than confirming, important hypotheses about developmental pathways. However, the data set is unusual in including observational assessments of child attachment behavior both in middle childhood and in adolescence in the context of a multi-wave, multi-method study. In addition, despite its small size, attachment-related findings from this cohort have replicated well across both low- and high-risk groups in two metaanalytic reviews (van IJzendoorn et al., 1999; Madigan et al., 2006). Given the coherence of the data over a number of diverse assessments spanning 20 years of development, we expect that these patterns will also prove robust in other studies of young children at risk.

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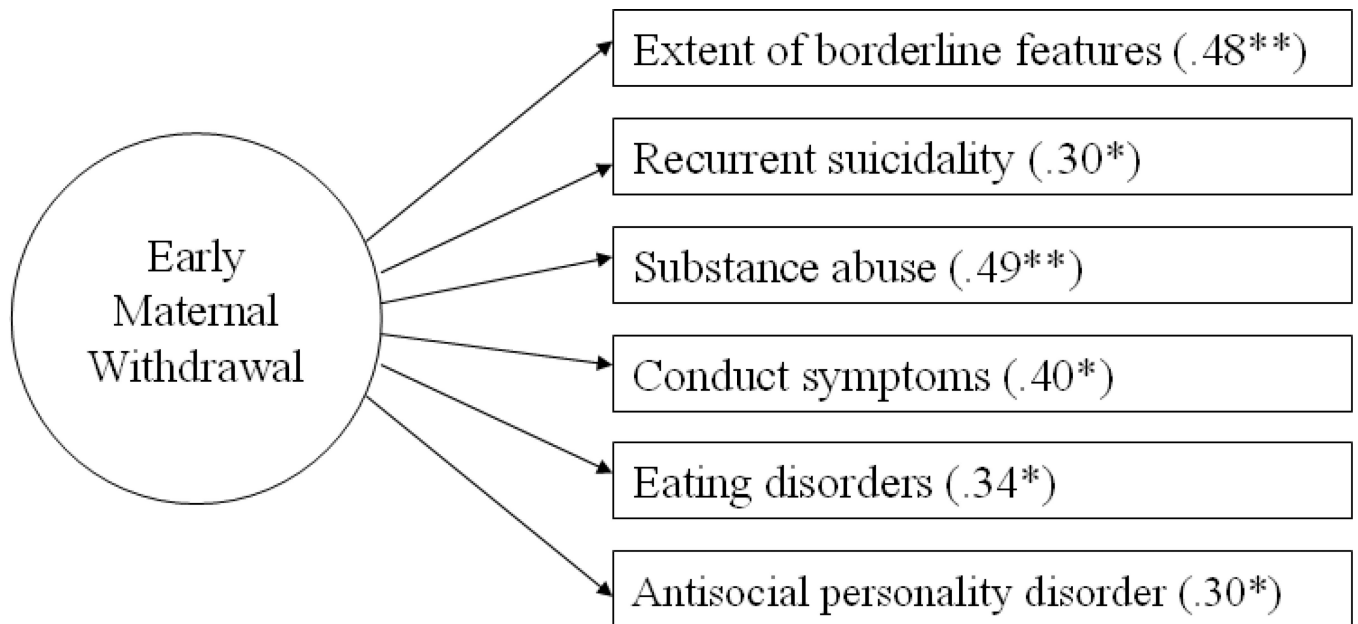


Figure 1. Maternal withdrawal and adolescent outcomes on the SCID in late adolescence. Effect sizes shown are beta for continuous outcomes or eta for dichotomous outcomes. From Pechtel et al. (2012), Shi et al. (2011) and Lyons-Ruth, Brumariu, et al. (2013); Eating disorders and conduct symptoms unpublished.

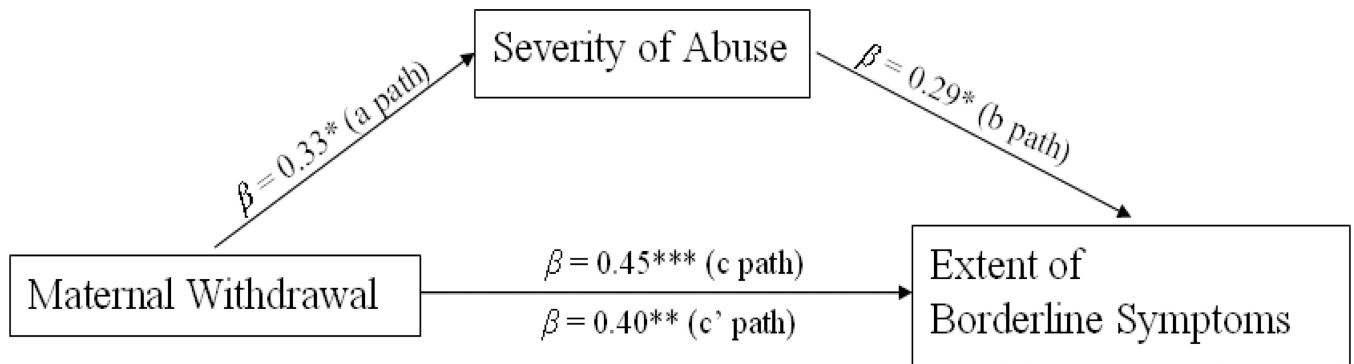


Figure 2.
Severity of Abuse Does Not Mediate the Effect of Early Maternal Withdrawal on Later Borderline Symptoms.
Note. Preacher and Hayes bootstrapping test for mediation not significant. See Lyons-Ruth, Bureau, et al. (2013).

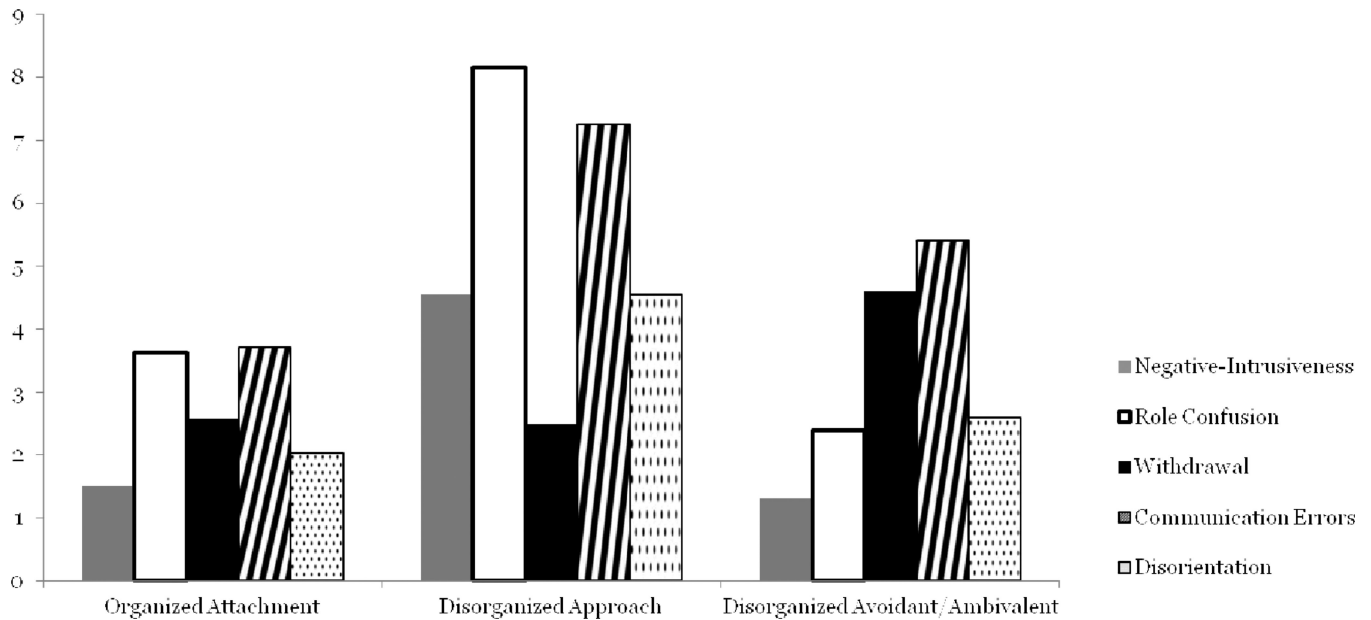


Figure 3. Maternal Behavior Profiles Associated with Disorganized-Approach and Disorganized-Avoidant/Ambivalent Infant Classification at 18 Months

Note. Mothers of infants with D-Avoidant/Ambivalent attachment behavior exhibited significantly more negative-intrusive behavior ($F(1,28) = 6.42, p = .02, R^2 = .19$) and role confusion ($F(1,28) = 4.53, p = .04, R^2 = .14$). Mothers of infants with D-Approach behavior exhibited significantly more withdrawal ($F(1, 28) = 5.23, p = .04, R^2 = .14$). Maternal communication errors and disorientation were core features that significantly discriminated between mothers of disorganized infants and mothers of non-disorganized infants across both subtypes (see Lyons-Ruth et al., 1999).

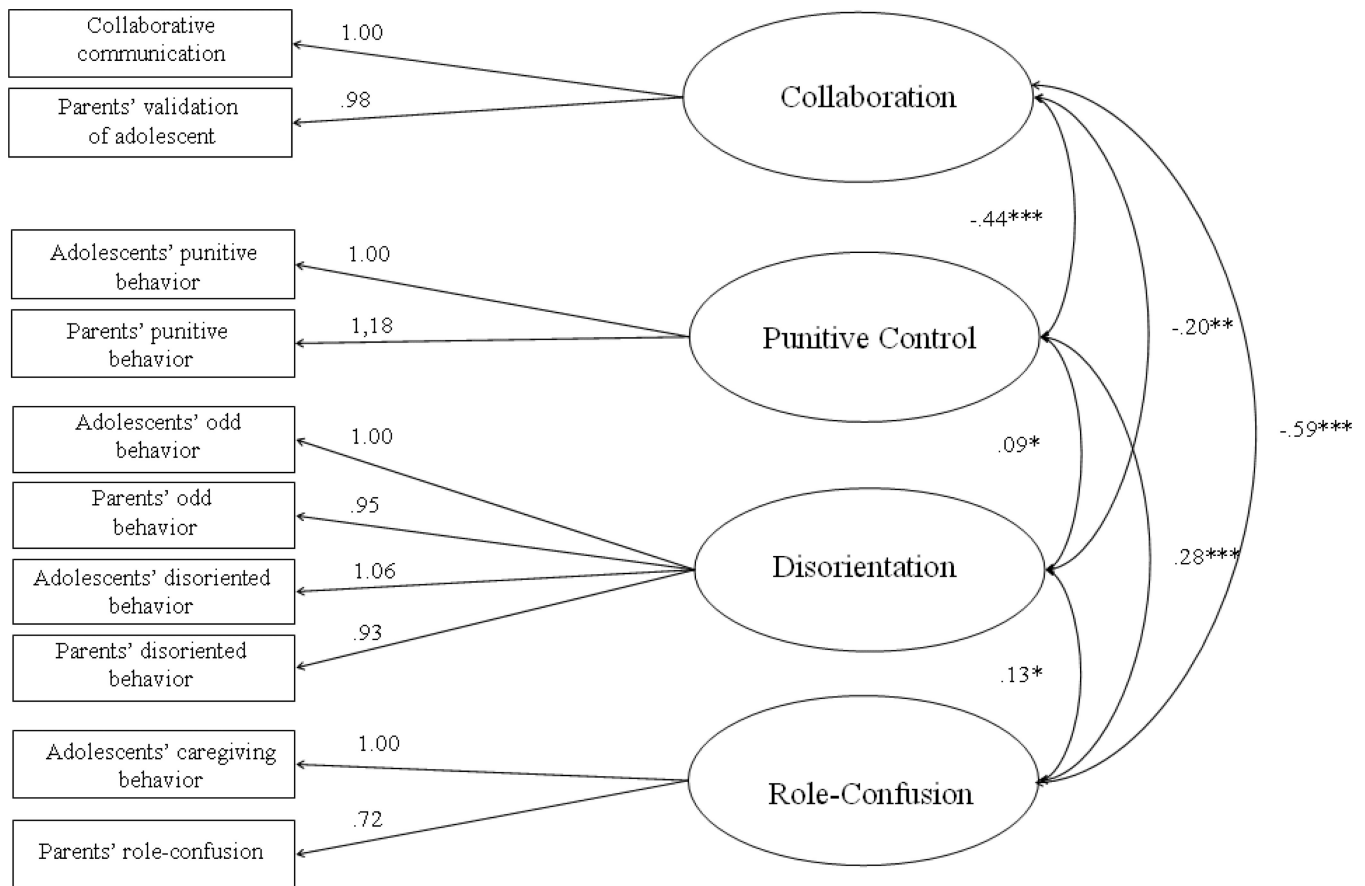


Figure 4. Confirmatory Factor Analysis: Four-Factor Model of Adolescent-Parent Interaction. *Note.* $N = 120$. Coefficients with asterisks indicate covariances among the latent factors, with associated significance levels (* $p < .05$; ** $p < .01$; *** $p < .001$); coefficients without asterisks indicate the item loadings for the 10 measurement scales on the four latent factors (all were significant at $p < .001$). Reprinted with permission from Obsuth et al. (2013).

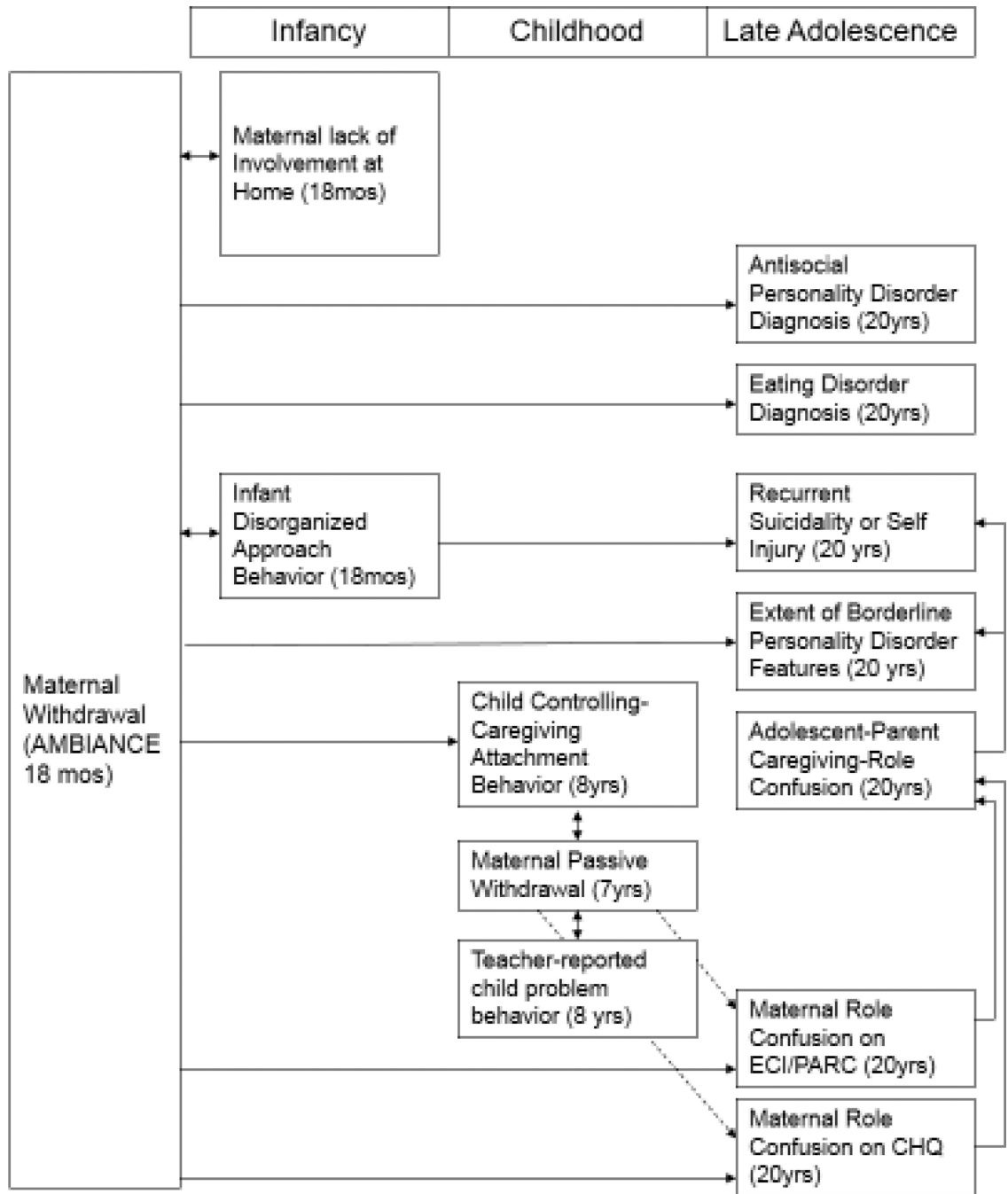


Figure 5. Summary of Outcomes Associated with Maternal Withdrawal.

Table 1

Elements of the AMBIANCE Coding System

**Maternal Disrupted Affective Communication
(Atypical Maternal Behavior Instrument for Assessment and Classification (AMBIANCE))**

- A. Overall disrupted communication scaled score (1–7)
 - B. Frequencies for five dimensions of disrupted communications
 - 1. Negative-Intrusive behavior
e.g. Mocks or teases infant.
 - 2. Role Confusion
e.g. Draws attention to self when infant is in need.
 - 3. Contradictory Affective Communication
e.g. talks in inviting voice but physically blocks infant’s access.
 - 4. Disorientation
e.g. shows confused, frightened, or odd affect with infant.
 - 5. Withdrawal
e.g. interacts from a distance; interacts silently; walks around infant.
-

Note. Adapted from Lyons-Ruth, Bronfman, & Parsons, 1999, *Monographs of the Society for Research in Child Development*, 64(3, Serial No. 258), pp. 67–96.

Table 2

Characteristics of a Withdrawing Profile of Maternal Behavior in Infancy

Withdrawing Profile	
A.	Lack of parental initiative around attachment (e.g. does not initiate greeting; does not initiate comforting; does not initiate interaction with the infant).
B.	Delayed Responding
C.	Cursory Responding (e.g. 'hot potato' pickup and putdown; moves away quickly).
D.	Directs infant away from self to toys.
E.	Distanced Interaction (e.g. walks around infant; interacts from across the room).
F.	Little or no hostility or intrusion.

Table 3

Discriminant validity of maternal withdrawal and maternal negative intrusiveness across assessment settings

	Laboratory assessment (AMBIANCE)	
	Maternal withdrawal (18 Months)	Maternal negative intrusiveness (18 Months)
Maternal behavior in the home		
Maternal lack of involvement (Home, 18 mos)	$r = .30^*$ (64)	$r = .16$ (64)
Maternal hostility (Home, 18 mos)	$r = .10$ (64)	$r = .33^{**}$ (64)
Clinical judgment		
Clinical referral (0–18 mos)	$eta = .38^{**}$ (65)	$eta = .19$ (65)

Note. In part, from Lyons-Ruth, Bronfman, and Parsons (1999). N's shown in parentheses. For two continuous variables, r is shown; for one categorical variable eta is shown.

⁺ $p < .10$;

* $p < .05$;

** $p < .01$.

Table 4

Characteristics of Disorganized-Approach and Disorganized- Avoidant/Ambivalent attachment behavior in infancy

Disorganized-Approach	Disorganized-Avoidant/Ambivalent
<ul style="list-style-type: none"> • Disorganized behaviors • Little avoidance or resistance • Distress to separation • Seeks proximity to parent • Calms to contact with parent • May appear passive, depressed, aimless, hesitant, or apprehensive 	<ul style="list-style-type: none"> • Disorganized behaviors • Avoidance, resistance, or both • Often appears quite conflicted • May combine separation distress with marked avoidance at reunion • May show no separation distress

Table 5

Middle childhood attachment behavior associated with early maternal withdrawal and negative-intrusiveness

Maternal behavior in infancy	Middle childhood attachment behavior			Overall disorganized/controlling behavior
	Child caregiving	Child disoriented	Child punitive	
Maternal withdrawal (Lab, 18 mos)	.43**	.19	-.13	.31 ⁺
Maternal negative-intrusiveness (Lab, 18 mos)	-.15	-.15	.15	-.07
Overall maternal disrupted communication (Lab, 18 mos)	.07	.15	.39*	.38*

Note. N = 34. Table shows β statistics after controlling for overall socioeconomic status. See Bureau et al., 2009.

⁺ p<.10;

* p<.05;

** p<.01.

Table 6

Mother-child Interaction over time and interview assessments of Maternal Role Confusion at age 20

	Parental Assessment of Role Confusion (PARC) β	Caregiving Helplessness Questionnaire (CHQ) β
Model 1. Disrupted affective communication with infant (AMBIANCE)		
Role/boundary confusion	.31*	.05
Withdrawal	.34**	.46**
Negative-intrusive behavior	.04	-.08
Affective communication errors	-.23 ⁺	-.06
Disorientation	.09	.09
Model 2. Maternal emotional availability in middle childhood		
Maternal passive-withdrawal (7 yrs) ^a	.25	.31
Maternal hostility (7 yrs)	-.11	-.29
Maternal lack of sensitivity (7 yrs)	.11	.21
Model 3. Observed mother-adolescent interaction (GPACS)		
Collaboration	.08	-.22
Caregiving/role-confusion	.27*	.29*
Punitive behavior	.09	.14
Disorientation	-.19	.10

Note. For infancy and adolescence, $n=51$; for middle childhood, $n = 32$. SES controlled in all analyses. PARC coded from Experiences of Caregiving Interview.

⁺ $p < .10$;

* $p < .05$;

** $p < .01$.

Data in part from Vulliez-Coady et al., (2013).