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Disorganized Behavior in Adolescent–Parent Interaction: Relations to Attachment State of Mind, Partner Abuse, and Psychopathology

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Disoriented, punitive, and caregiving/role-confused attachment behaviors are associated with psychopathology in childhood, but have not been assessed in adolescence. A total of 120 low-income late adolescents (aged 18–23 years) and parents were assessed in a conflict-resolution paradigm. Their interactions were coded with the Goal-Corrected Partnership in Adolescence Coding Scales. Confirmatory factor analysis demonstrated that the three disorganized constructs (punitive, caregiving, and disoriented interaction) were best represented as distinct factors and were separable from a fourth factor for collaboration. The four factors were then assessed in relation to measures of attachment disorganization, partner abuse, and psychopathology. Results indicate that forms of disorganized behavior first described in early childhood can also be reliably assessed in adolescence and are associated with maladaptive outcomes across multiple domains.

Disorganized-disoriented, punitive, and caregiving forms of disorganized attachment have been reliably described from infancy through age 8 years and are associated with parental risk factors and maladaptive internalizing and externalizing behavior problems (Cyr, Euser, Bakermans-Kranenburg, & van IJzendoorn, 2010; Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman, 2010). The aim of this study was to examine whether these forms of disorganized and controlling behaviors are also observable in adolescence and whether they have similar risk-related correlates as seen at earlier developmental periods.

Assessment of Controlling and Disorganized Interactions in Adolescence?

Bowlby (1969/1982) introduced the term “goal-corrected partnership” to describe the process of balanced give-and-take between parent and child in deciding on joint directions, particularly those relevant to the child’s sense of security. The ability of

parents to maintain a goal-corrected partnership with their child is particularly critical during conflict between parents and children, which increases during adolescence (Allen, Hauser, Bell, & O’Connor, 1994; Paikoff & Brooks-Gunn, 1991). Kobak, Cole, Ferenz-Gillies, Fleming, and Gamble (1993) reasoned that if a goal-corrected partnership is established between parent and child early in life, flexible strategies for negotiating between the needs of self and others will become established as internal working models and will guide negotiations with parents around increased autonomy during the transition through adolescence.

However, developmental changes during adolescence pose challenges for the assessment of attachment relationships. The need for the physical presence of the attachment figure is less frequent and intense in adolescence than in earlier childhood. This requires a shift from observing responses to reunions to observing more subtle and ongoing secure base behaviors that occur during the process of interaction (Kobak et al., 1993). Allen et al. (2002) further point out that balancing autonomy with secure relatedness is highlighted during parent–adolescent conflict discussions. During these interactions one can observe the degree to which both adolescent and parent confidently state their opinions, while also validating and showing respect and empathy for the other person’s diverging point

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of view. Such respectful and empathic exchange of views in the service of guiding joint activity is thought to constitute the essential characteristic of a goal-corrected partnership (Bowlby, 1969/1982).

Due to the heightened importance of conflict negotiation during adolescence, researchers have often used a conflict discussion paradigm to assess aspects of parent-adolescent relationships (e.g., Allen et al., 1994; Eisenberg et al., 2008; Kobak et al., 1993; Wakschlag, Chase-Lansdale, & Brooks-Gunn, 1996). These coding systems all include an assessment of collaboration in dyadic functioning. However, none of these systems were developed to capture the controlling and disorganized forms of parent-child interactions described among at-risk children at younger ages.

Disorganized and Controlling Behaviors in Infancy and Childhood

In infancy, the term *disorganized* refers to the lack of a consistent way of organizing attachment responses to the parent when under stress (Main & Solomon, 1990). The particular combinations of disorganized behaviors observed in infancy tend to be idiosyncratic from child to child but include apprehensive, helpless, or depressed behaviors; unexpected alternations of approach and avoidance toward the attachment figure; and other marked conflict behaviors, such as prolonged freezing or stilling, or slowed “underwater” movements (see Main & Solomon, 1990). These disorganized attachment behaviors in infancy have been further related to elevated cortisol responses in infancy (e.g., Spangler & Grossmann, 1993) and to behavior problems by school entry (van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999).

As disorganized infants make the transition into the preschool years, controlling patterns of interaction emerge, in addition to disorganized behavior (Cassidy, Marvin, & McArthur Working Group on Attachment, 1992; Main & Cassidy, 1988; NICHD Early Child Care Research Network [ECCRN], 2001). Controlling children “actively attempt to control or direct the parent’s attention and behavior, and [they] assume a role, which is usually considered more appropriate for a parent with reference to a child” (Main & Cassidy, 1988, p. 418–419). Two forms of controlling behavior are observed: *Controlling-caregiving behavior* is characterized by organizing and guiding the parent or providing support and encouragement (e.g., child asks mother if she is all right). *Controlling-punitive behavior* is characterized by episodes of hostility toward the

parent that are marked by a challenging, humiliating, cruel, or defying quality (e.g., a child gives orders to the parent; child tells parent that parent is terrible at doing the task).

However, some disorganized infants remain disorganized over the preschool period and do not adopt controlling strategies. Moss, Cyr, Bureau, Tarabulsy, and Dubois-Comtois (2005) found that 25% of young children who were disorganized at age 3 remained disorganized at age 6. Bureau, Easterbrooks, and Lyons-Ruth (2009) extended this age range by finding that behavioral disorganization, as well as controlling forms of behavior, continued to be evident at age 8 years.

While some disorganized infants remain disorganized and others adopt controlling behaviors, a sizable group also changes to organized patterns of attachment behavior during the preschool period. Evidence for continuity from disorganized behavior in infancy to disorganized or controlling behavior after infancy has been mixed, with stability estimates ranging from 20% (NICHD ECCRN, 2001) to 80% (van IJzendoorn et al., 1999). However, the NICHD ECCRN (2001) only assessed attachment behavior up to age 3 years, so the lower stability seen in that study may reflect turbulence over the transition period of toddlerhood, while the higher figure was derived from studies assessing stability from infancy to later in the preschool period. Finally, it should be noted that a sizable number of children who do not appear disorganized in infancy begin to display controlling behaviors by school age (Bureau et al., 2009; Main & Cassidy, 1988; NICHD ECCRN, 2001; Wartner, Grossmann, Fremmer-Bombik, & Suess, 1994).

Whether or not they are continuous with infant behavior, a large literature on 3- to 8-year-olds supports the importance of these controlling and disorganized child behaviors in early trajectories of risk. Disorganized or controlling dyads display lower quality parent-child communication and reciprocity than secure and insecure-organized dyads (e.g., Moss, Cyr, & Dubois-Comtois, 2004; NICHD ECCRN, 2001) and exhibit the highest levels of teacher-reported disruptive and internalizing symptoms (Fearon et al., 2010; Moss et al., 2004; O’Connor, Bureau, McCartney, & Lyons-Ruth, 2011). Controlling-punitive children are at greater risk for externalizing symptoms and controlling-caregiving children at greater risk for internalizing symptoms (Fearon et al., 2010; Moss et al., 2004; O’Connor et al., 2011). Notably, none of the above studies have found consistent gender differences in the incidence of controlling or disorganized attachment behavior.

Mothers of disorganized-controlling children report more depression and more dysfunctional relationships with partners (Moss et al., 2004; NICHD ECCRN, 2001; O'Connor et al., 2011) and are more likely to display Unresolved states of mind on the Adult Attachment Interview (AAI; van IJzendoorn et al., 1999). These mothers also report higher levels of caregiving helplessness on the Caregiving Helplessness Questionnaire (CHQ), a maternal self-report measure of helplessness experienced in the parental role (George & Solomon, 1996).

Thus, both disorganized and controlling forms of child behavior have been validated as markers of risk from infancy to middle childhood. However, from age 8 years through adolescence and adulthood, little is known about whether controlling or disorganized behaviors remain evident in child-parent interactions or whether they should be regarded as markers of risk.

Assessment of Disorganized Attachment Representations in Adolescence

Research on adolescent attachment has largely relied on the AAI. Kobak and colleagues found that autonomous states of mind in adolescence, assessed with the Attachment Q-set based on the AAI, were associated with fewer high-risk behaviors, fewer mental health problems, and problem-solving discussions characterized by less dysfunctional anger (Kobak & Ferenz-Gillies, 1995; Kobak et al., 1993). In addition, Allen and Hauser (1996) reported that mothers' support for autonomy and relatedness during a family interaction task in adolescence predicted the young adults' coherence on the AAI at age 25 years. Thus, security in adolescent-parent attachment appears to serve a protective function in adolescent development.

However, the Attachment Q-set used in adolescence has no items for discriminating the indicators of Unresolved Loss or Trauma on the AAI that are thought to be the adult analogue of disorganized attachment strategies. In addition, based on studies of high-risk adolescents, it remains unclear whether the scoring system for Unresolved Loss or Trauma on the AAI provides a strong index of disorganization in adolescence. In the Minnesota Longitudinal Study, which involved a low-income sample with a higher incidence of disorganization in infancy, little continuity was found from disorganized attachment classifications in infancy to Unresolved AAI classifications at age 19 years (Weinfeld, Whaley, & Egeland, 2004). In addition, an unusually high percentage of these high-risk adolescents were

classified as Dismissing on the AAI (52%), while the percentage classified Unresolved was similar to that in low-risk samples (15%).

A more recent coding system for the AAI, the Hostile-Helpless (HH) coding system (Lyons-Ruth, Melnick, Patrick, & Hobson, 2007; Lyons-Ruth, Yellin, Melnick, & Atwood, 2005), may be promising for assessing disorganization in adolescence because it does not rely on how the adolescent discusses experiences of loss or abuse. Instead, the HH coding system focuses on how the participant discusses childhood attachment relationships across the entire interview, rating the degree to which there is an overall lack of integration between more extreme forms of positive and negative evaluations of primary attachment relationships. This lack of integration is viewed as emerging from the very unbalanced, dominant-submissive relationship models seen in punitive or caregiving parent-child interactions. HH classifications on the AAI have been related to maternal disrupted communication and infant disorganization (Lyons-Ruth, Yellin, et al., 2005), and to maternal psychopathology (Lyons-Ruth et al., 2007).

In summary, the evidence is equivocal that an interview-based method such as the AAI can provide a sensitive measure of attachment disorganization among high-risk youth. Thus, there is the clear need for a well-grounded behavioral assessment of attachment disorganization in adolescence.

The Current Study

To fill this gap in the assessment of disorganization in adolescence, the Goal-Corrected Partnership in Adolescence Coding System (GPACS) was developed (Lyons-Ruth, Hennighausen, & Holmes, 2005). The GPACS includes 10 scales for rating both parent and adolescent collaborative, controlling, and disorganized behaviors during a reunion and revealed differences task.

The first objective of the study was to assess the factor structure of the 10 coding scales included in the GPACS. On the basis of previous literature, we predicted a model in which indicators of collaborative interaction would contribute to one latent factor and indicators of the three types of disorganized behavior would contribute to three separate latent factors for disorientation, punitive control, and caregiving/role confusion. Alternate one-factor (all items loading on a single collaborative to disorganized factor) and two-factor (one factor for collaboration and one factor for disorganization) models were also evaluated.

We were also interested in assessing how adolescent and parent behavior might be related to one another. Prior research has focused primarily on coding forms of child behavior rather than on assessing both partners. Thus, following work by Britner, Marvin, and Pianta (2005), we advanced a parsimonious model in which similar or complementary parent and child behaviors would factor together.

The second objective was to assess the construct validity of the GPACS factors in relation to other measures of attachment disorganization and role confusion. Given the theoretical link between Unresolved states of mind and dissociative processes (Hesse & Main, 2006), disorientation in interaction was expected to be related to Unresolved states of mind on the AAI. Given the theoretical link between HH states of mind and controlling interactions (Lyons-Ruth, Yellin, et al., 2005; Lyson-Ruth, et al., 2007), punitive and caregiving/role confused behaviors were expected to be related to HH states of mind on the AAI. We also expected caregiving/role-confused behavior to be related to other validated measures of role confusion, including the Caregiving Helplessness Questionnaire (George & Solomon, 1996) and the Role-Confusion Module of the Childhood Experiences of Care and Abuse (CECA) interview (Bifulco, Brown, & Harris, 1994).

Assessments of attachment disorganization in infancy were also available on a subset of adolescent participants who had been seen longitudinally since infancy. Continuity from infancy to adolescence would not necessarily be predicted by attachment theory, given change in family functioning over time (e.g., Thompson, 2008; Van Ryzin, Carlson, & Sroufe, 2011). However, due to the importance of infancy in attachment theory, the relations between disorganized attachment behavior in infancy and GPACS factors in adolescence were also assessed.

The third objective was to assess relations between GPACS factors and other aspects of functioning theoretically linked to attachment processes (Thompson, 2008). Thus, we assessed conflict and abuse in romantic relationships and several aspects of psychopathology, including depressive symptoms, dissociative symptoms, and overall psychiatric morbidity on a standard diagnostic interview.

Finally, we assessed discriminative validity in relation to socioeconomic risk, gender, and verbal skills. We did not expect adolescent gender to be related to the obtained interaction factors (Bakermans-Kranenburg & van IJzendoorn, 2009). However, previous literature has shown a significant link between socioeconomic risk and attachment

disorganization (Cyr et al., 2010); therefore, such a link was expected in this study. Modest links have been found between AAI security and verbal skills in adults (e.g., Crowell, Waters, Treboux, & O'Connor, 1996), but little is known about possible links between verbal skills and adolescent observational measures.

Method

Participants

Participants were 120 predominantly low-income older adolescents ($M = 19.9$ years, $SD = 1.57$; 69 female adolescents) and their mothers who were part of a study of adaptation and psychopathology in late adolescence. The household income of 59% of the families was under \$40,000 per year; 66% of adolescents were Caucasian; others were of other ethnic backgrounds; 12% of mothers had not completed high school. Thirty-eight percent of the mothers were single parents. Sixty-four of the 120 families were first seen in adolescence; 56 families had been followed since infancy. The 64 families seen only in adolescence were matched to longitudinal families on adolescent age, ethnicity, and mothers' single parenthood.

The 56 longitudinally studied families were part of a cohort of 76 low-income families recruited during the first 18 months of the child's life, yielding a retention rate of 74% (14% could not be located, 9% refused, and 3% lived overseas). Attrition was unrelated to all assessments in infancy (effect sizes ϕ or $\eta = -.14$ through $.13$) and was associated with only one of eight socioeconomic indices: single parenthood, $\chi^2(1, 76) = 8.66$, $\phi = .34$, $p = .01$. Half of the families seen in infancy were referred to the study by social service providers due to their concerns about the quality of care provided to the infant; other families seen in infancy did not exhibit problems in infant care (for additional description, see Lyons-Ruth, Connell, Grunebaum, & Botein, 1990). Families first seen in adolescence reported no referrals for parenting help in infancy. Thus, sample composition ensured a range of caregiving risk within the sample.

Procedure

After an introduction to the protocol, adolescents and their mothers went to separate rooms to complete interviews and questionnaires. Following Kobak et al. (1993), they separately completed an Issues Checklist on which each person rated sources

of disagreement in their relationship. Based on both parent and adolescent checklists, a topic was selected for discussion and the adolescent taped a 1-min statement of his or her position. The parent and adolescent were then reunited for a 5-min unstructured reunion, followed by the playing of the taped adolescent statement and a 10-min discussion of the topic of disagreement.

Assessment of Adolescent–Parent Interaction

The interaction during the 5-min reunion and 10-min conflict discussion was coded from videotapes using the GPACS (Lyons-Ruth, Hennighausen, et al., 2005). The development of the GPACS drew on prior literature describing behavioral manifestations of security, insecurity, controlling behavior, and behavioral disorganization among younger children toward their parents in stressful interactions. The coding system was developed by reviewing 45 observations of parent–adolescent (both mother and father) conflict discussions from both low- and high-income samples of adolescents aged 13–18 years (Allen & Hauser, 1996; Kobak, Zajac, & Levine, 2009; Powers & Welsh, 1999).

The GPACS coding system includes the rating of each videotape on ten 5-point scales. One scale, the collaborative communication scale, focuses on the dyad and was included to provide a summary measure of the extent to which the interaction is cooperative, reciprocal, and balanced for the dyad as a whole. The other nine scales rate the behavior of the adolescent or the parent separately, including four scales that rate forms of adolescent controlling or disorganized behavior, four scales that rate corresponding aspects of parental behavior, and a final scale for parental validating behavior.

Specifically, the adolescent caregiving behavior scale assesses the extent to which the adolescent attempts to manage or take care of the parent or modulate the parent's behavior (e.g., offering guidance; defusing tension with overbright, entertaining behavior). The adolescent punitive behavior scale assesses the extent to which the adolescent behaves in a hostile, punitive, or devaluing way toward the parent (e.g., making critical, mocking, or rejecting comments; sharply dictating how the parent should behave). The adolescent odd, out-of-context behavior scale taps the extent to which the adolescent engages in odd, out-of-context, or contradictory behaviors, which may seem disjointed, startling, or inexplicable to an observer (e.g., using a forced, high-pitched, or childlike tone of voice; shifting into unusual, fantasy-based topics). The

adolescent disoriented-distractible scale captures the extent to which the adolescent exhibits distracted, disoriented, or inwardly absorbed behavior (e.g., suddenly stopping in midsentence and freezing with hand in midair). The remaining five scales rate the behavior of the parent. The scale for parent's validation of adolescent's voice rates the degree to which the parent supports the adolescent's exploration of thoughts and feelings related to the conflict (e.g., eliciting the adolescent's opinions; providing reassurance). Because the parent is conceptualized as the attachment figure for the adolescent, and not vice versa, this scale was intended to capture the parent's function as a secure base for the adolescent. The scale for parental punitive behavior is parallel to the adolescent scale described above, as are the parental scales for odd, out-of-context behavior and for disoriented-distractible behavior. The parental role-confusion scale assesses the extent to which the parent fails to assume a parental stance by failing to structure the interaction, failing to contribute to the task goals (discuss the conflict), or remaining excessively self-focused (e.g., asking for advice on topics more typically discussed with other adults). All ratings were reliable, $r_{1S} = .75-.96$ ($n = 16$).

Assessment of Disorganized Attachment Representations

Adult Attachment Interview. The AAI was administered to the adolescents prior to the interaction task. The AAI (George, Kaplan, & Main, 1984, 1985, 1996) is a semistructured interview designed to elicit a participant's current state of mind regarding attachment experiences with parents and other significant caregivers during childhood. The interviewer asks about the quality of childhood experiences with parents; the participant's responses to experiences of rejection, separation, loss, and trauma during childhood; and the participant's evaluation of the effects of those childhood experiences on his or her current functioning.

Unresolved loss or trauma. The AAI was coded for autonomous, preoccupied, dismissing, unresolved, and cannot classify classifications using the Adult Attachment Scoring and Classification System (Main, Goldwyn, & Hesse, 2003). Coders were trained and certified as reliable through the standard training procedures of Main and Hesse and were naive to all other data in this study. The reliability Kappa for classification between two coders on the present sample was $K = .71$ ($n = 27$). Given our focus on disorganized attachment, the classification as Unresolved with respect to Loss or Trauma was the

primary variable of interest (Unresolved $n = 19$; Not Unresolved $n = 95$). The unresolved classification has extensive validity in relation to family risk and infant disorganized attachment (van IJzendoorn et al., 1999).

HH representations of attachment relationships. The AAI was also coded by separate and naive coders for HH representations of attachment relationships (Lyons-Ruth, Yellin, et al., 2005). The HH coding system consists of indicators that culminate in an overall 1–9 scaled score for the extent of HH state of mind indicators regarding attachment relationships (see Lyons-Ruth, Yellin, et al., 2005, for additional detail). Protocols assigned a scaled score of 5 or higher are classified as reflecting a HH state of mind. The HH classification was used in the current analyses. Transcripts classified Hostile-Helpless are characterized by evidence of opposing and globalized evaluations of primary attachment relationships occurring across the interview that are neither discussed nor reconciled by the participant, for example “We were friends ... We were enemies.” Interrater reliability on HH classification was $K = .82$ ($n = 15$). The HH coding system has been validated in relation to infant disorganization, maternal disrupted communication, and adult psychopathology (Lyons-Ruth et al., 2007; Lyons-Ruth, Yellin, et al., 2005).

Assessment of Parent–Child Role Confusion

CECA: Role-Confusion (CECA-RC) module. The CECA-RC is an investigator-rated, semistructured interview assessing childhood experiences of parent–child role confusion (Bifulco et al., 1994). The Role-Confusion module is part of the larger CECA interview assessing maltreatment in childhood, which has satisfactory interrater reliability and validity (Bifulco et al., 1994). The CECA-RC includes 20 questions assessing emotional role confusion (e.g., “Did your mother ever confide her problems in you?”) and six questions assessing instrumental role confusion (e.g., “Did you have a great deal of responsibility in the home as a child?”). Emotional Role Confusion and Instrumental Role Confusion were rated on separate 5-point scales developed for this study, reliability $r_s = .95$ and $.91$, respectively ($n = 45$).

Assessment of Romantic Relationship Quality

The Revised Conflict Tactics Scale (CTS2). The CTS2 is a well-validated measure of intimate partner abuse (e.g., Straus, Hamby, Boney-McCoy, &

Sugarman, 1996; Vega & O’Leary, 2007). It contains 78 items, 31 assessing the respondent’s abuse toward partner and 31 assessing the partner’s abuse toward respondent (e.g., “I twisted my partner’s arm or hair”). Other items tap positive negotiation skills or less serious negative behaviors and were not included in the scores used here. Each item is rated on a scale from 0 to 6 (*more than 20 times*) indicating frequency in the year of greatest difficulty. Two scores were computed, one for abuse by the adolescent toward their partner and one for abuse by the partner toward the adolescent ($\alpha_s = .85$ – $.87$, respectively).

The Adolescent to Adult Personality Functioning Assessment (ADAPFA). The ADAPFA is an investigator-rated interview that inquires about functioning over periods of several years in six social domains: love relationships, friendships, work relationships, nonspecific social interactions, negotiations, and coping (Hill, Harrington, Fudge, Rutter, & Pickles, 1989). The domain of love relationships was assessed in this study for the time period between high school entry and time of interview. The interviewer uses flexible questioning to obtain adequate information and make ratings on a 1–6 scale on the basis of detailed rating rules, a dictionary of examples, and training. In this study, high ratings indicate a high quality of commitment, sharing, and companionship in love relationships. The APFA has shown good interrater reliability and subject–informant agreement (Hill, Fudge, Harrington, Pickles, & Rutter, 1995). Reliabilities between the four study raters and expert coders from J. Hill’s lab were $r_s = .67$, $.75$, $.81$, and $.82$ ($n = 12$).

Assessment of Psychopathology

Overall psychopathology. The Structured Clinical Interview for *DSM-IV* (SCID-I; First, Spitzer, Gibbon, & Williams, 1997) was administered to the adolescents to assess the presence of Axis I psychiatric diagnoses. The SCID-I is a widely used, clinician-administered, semistructured interview for use in clinical or community settings. Each diagnosis is coded as present or absent. The SCID yields reliability κ_s of $.61$ for current diagnosis and $.68$ for lifetime diagnoses, comparable to other structured diagnostic interviews. Following Carlson (1998), a measure of overall severity of lifetime psychiatric symptomatology was calculated by assigning higher weights (1–6) to more severe diagnoses and computing a sum score of all weighted diagnoses for a given individual, with final scores reflecting

both the frequency and severity of psychiatric diagnoses. Depressive and anxiety disorders were given lower weights, and schizophrenia and bipolar disorder were given the highest weights.

Center for Epidemiological Studies Depression (CES-D) scale. Adolescents completed the CES-D, a 20-item, 60-point self-report scale used to measure current levels of depressive symptoms in adults and late adolescents (Radloff, 1977). The CES-D is a widely used instrument for assessing general depressive symptoms in nonclinical samples, with well-established reliability and validity (Radloff, 1977). Items (e.g., "My sleep was restless") are rated on a 4-point scale from *rarely* to *much* according to how often they were experienced over the past week ($\alpha = .77$).

Dissociative Experiences Scale (DES). The DES is a 28-item questionnaire assessing the extent of dissociative experiences. Respondents indicate how much of the time they experience particular dissociative phenomena on a scale from 0% to 100% (Bernstein & Putnam, 1986). A meta-analysis has demonstrated convergent validity with other measures of dissociation, predictive validity with Dissociative Identity Disorder, and robust test-retest reliability ($\alpha = .93$; van IJzendoorn & Schuengel, 1996).

Assessment of Other Domains

Wechsler Adult Intelligence Scale Similarities Subtest (Third Edition) was administered to assess verbal intelligence. This subtest has a high correlation ($r = .85$) with overall Wechsler Adult Intelligence Scale (WAIS) verbal IQ scores (WAIS[®]-III; Wechsler, 1997). It consists of 14 items in which participants are asked to say how two seemingly dissimilar objects might be similar. Responses are scored on a scale from 0 (*failed to respond*) to 2 (*complex response consistent with response manual*).

Cumulative sociodemographic risk was computed by summing the presence of the following three factors (range = 0–3): mother high school education only, mother a single parent, and family income \$40,000 per year or less.

Longitudinal Participants: Additional Measures

Infant attachment disorganization. Mothers and infants in the longitudinal subgroup were videotaped in the Strange Situation Procedure at 18 months of age (Ainsworth, Blehar, Waters, & Wall, 1978). Videotapes were coded using standard coding procedures for organized and disorganized

attachment classifications (Ainsworth et al., 1978; Main & Solomon, 1990; see Lyons-Ruth et al., 1990). For this study, the dichotomous classification for organized versus disorganized attachment was used (53% Organized; 47% Disorganized). Reliability on the disorganized classification between M. Main and a second coder was $\kappa = .73$ ($n = 32$).

Caregiving Helpless Questionnaire. The CHQ (George & Solomon, 1996) consists of 45 statements (including seven fillers) assessing the parent's sense of helplessness in the caregiving role (e.g., "I often feel that there is nothing I can do to discipline my child"; "I often depend on my child to teach me about the world"). Statements are rated on a 1–5 Likert scale (5 = *very characteristic of me*) to yield a total score ranging from 38 to 200. Higher scores reflect greater caregiving helplessness. The CHQ has been validated in relation to child controlling behavior for mothers of children ages 3–11 years (George & Solomon, 2011). For the current sample $a = .80$.

Data Analytic Plan

First, the fit of the proposed four-factor model was evaluated through confirmatory factor analyses (CFA) using structural equation modeling (SEM) with Analysis of Moments Structure software (Arbuckle, 1997). SEM allows for the specification of the measurement model that captures the reliable portion of the shared variance across items in a multi-item scale, as well as adjusting parameter estimates to account for missing data using full information maximum likelihood. The latent factors tested by the CFA were not required to be orthogonal because relations between different aspects of disorganized behavior (punitive, caregiving, disoriented) were of interest. Second, the relations between the obtained GPACS latent factors and measures of construct, convergent, and discriminant validity were estimated in linear regression analyses within an SEM framework (de Jong, 1999) or in logistic regression analyses. Relations with independent variables of interest were evaluated for each latent GPACS factor separately, controlling for covariates when appropriate.

Results

GPACS Factor Structure—CFA

The first question was whether the three distinct aspects of disorganized interaction described in childhood are also observed in adolescence or whether a different factor structure better fits the

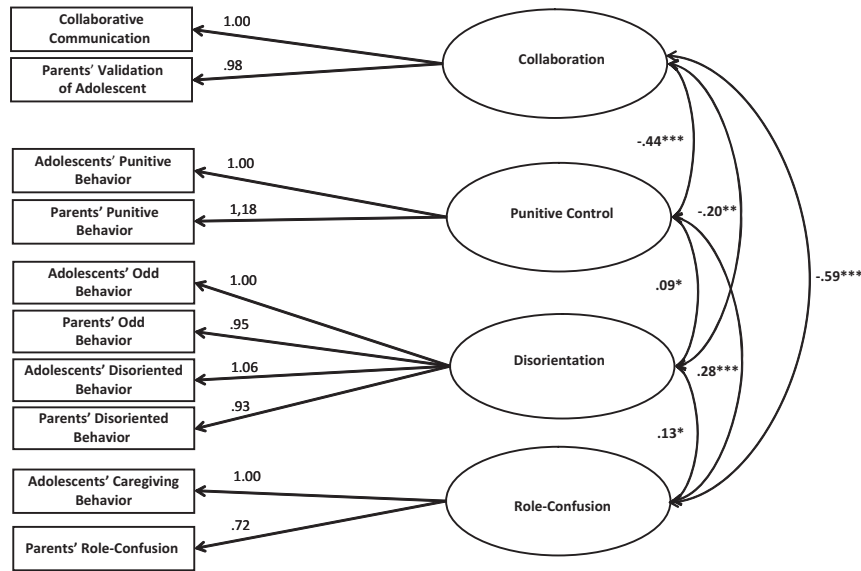


Figure 1. Confirmatory factor analysis: Four-factor model of adolescent–parent interaction. $N = 120$. Coefficients with asterisks indicate covariances among the latent factors, with associated significance levels ($*p < .05$, $**p < .01$, $***p < .001$); coefficients without asterisks indicate the item loadings for the 10 measurement scales on the four latent factors (all were significant at $p < .001$).

data. Applying CFA to the 10 scales of the GPACS, we tested a theoretically derived four-factor model (Model 1) that included one factor for collaborative interaction and three separate factors for punitive, disoriented, and role-confused interaction (see Figure 1). This model achieved an acceptable fit based on the incremental close-fit indices (see Table 1). Next, we compared the fit of Model 1 with two alternative models: a two-factor model in which all disorganized indicators loaded on a single disorganized factor (Model 2) and a one-factor model allowing all items (both collaborative and disorganized) to load on a single factor (Model 3). Both the alternative models provided a poor fit to the data, with fit indices outside the range of acceptable fit (root mean square errors of approximation [RMSEAs] $> .10$; comparative fit indices [CFIs] and Tucker-Lewis indices [TLIs] $< .79$; see Table 1). The chi-square difference scores between the four-factor model and the two alternative nested models were significant, indicating that the four-factor model provided a significantly better fit than the other models: $\chi^2_{diff(5)} = 80.81$, $p = .001$ and $\chi^2_{diff(6)} = 87.78$, $p = .001$, respectively.

In addition, while the 10 individual coding scales assessed the behavior of one individual, the CFA confirmed a particular kind of underlying dyadic structure to the observed interactions, in that each factor included contributions from both adolescent and parent. The CFA could have indicated a very poor fit for Model 1, which posited this dyadic

Table 1
Model Fit Statistics and Close-Fit Indices for CFA Models

Model	$\chi^2(df)$	p	RMSEA	CFI	TLI
Model 1: Four-factor model	42.39 (29)	.062	.060	.969	.942
Model 2: Two-factor model	123.21 (34)	.001	.148	.795	.668
Model 3: One-factor model	130.18 (35)	.001	.151	.781	.656

Note. In confirmatory factor analysis (CFA) models, a chi-square value close to zero and a $\chi^2 p > .05$ indicate that there is little difference between the expected and observed covariance matrices, which is one indicator of a good fit. RMSEA values range from zero to one with a smaller RMSEA value indicating better model fit. Good model fit is typically indicated by an RMSEA value of .06 or less. CFI and TLI values range from zero to one with a larger value indicating better model fit. Acceptable model fit is indicated by a CFI value of .90 or greater (Hu & Bentler, 1999). RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index.

structure, so the support for a dyadic model was an additional result of these analyses and was not built into the coding system per se.

The disorientation factor that resulted from these analyses was positively skewed (skew = 1.85) and could not be adequately normalized using standard transformations. To assess whether this violation of normality was affecting the results, we repeated all analyses of the relations between disorientation and the continuous dependent variables (DVs) as reported next, using analyses of variance

(ANOVAs), because ANOVAs do not assume normality of independent variables (IVs). In those analyses, disorientation was entered as a categorical IV and the DVs were the continuous outcome measures. These results based on the ANOVAs were consistent with those reported in the manuscript using regression techniques, thus indicating that violation of the assumption of normality was not biasing the results.

Relations Among GPACS Factors

Examination of the covariances between the Collaboration Factor and the other three factors revealed that collaboration was significantly negatively related to the other three factors. Furthermore, the covariances among the three factors indexing disorganization were positively related (see Figure 1). Thus, the pattern of covariation among the disorganized factors indicates that dyads or individuals could display more than one form of disorganized behavior in interaction. Although the covariances among the three disorganized factors were all significantly different from zero, they were also modest (.09–.28, Figure 1). Thus, as confirmed by the CFA, the three aspects of disorganized behavior were largely distinct from one another, even though they could also occur in combination.

Control Analyses and Discriminant Validity of the GPACS

The means, standard deviations, and ranges for continuous study variables are presented in Table 1. In support of discriminant validity, adolescent gender was not significantly related to any of the factors (all r s = .01 to $-.13$; all p s > .20). In addition, no relation was found between fluid verbal intelligence, indexed by the WAIS Similarities Subtest, and any of the factors (all r s = $-.16$ to $.04$; all p s > .25). However, consistent with previous literature, family sociodemographic risk was significantly negatively related to the Collaboration Factor ($r = -.34$, $p = .02$) and significantly positively related to both the Disorientation Factor ($r = .20$, $p = .04$) and the Caregiving/Role-Confusion Factor ($r = .20$, $p = .04$). Therefore, sociodemographic risk was included as a covariate in all subsequent analyses.

Adolescent–Parent Interaction and Measures of Disorganized Attachment

Unresolved states of mind on the AAI. Both Collaboration and Disorientation in interaction were

significantly related to Unresolved classification on the AAI. Logistic regression analyses indicated that with every 1-point increase in the level of Collaboration, the odds of the adolescent *not being classified* as Unresolved increased by 159% ($\chi^2 = 6.20$, $p = .01$). With every 1-point increase in the Disorientation factor score, the odds of the adolescent *being classified* as Unresolved on the AAI increased by 164% ($\chi^2 = 4.72$, $p = .03$). There were no significant relations between Unresolved classification on the AAI and either Punitive Control or Caregiving/Role-Confused interactions ($\chi^2 = .855$, $p = .355$ and $\chi^2 = 2.01$, $p = .156$, respectively).

HH representations of attachment on the AAI. Both Collaboration and Punitive Control were significantly related to HH classification on the AAI. With every 1-point increase in Collaboration in adolescent–parent interaction, the odds of the adolescent

Table 2
Descriptive Data for Continuous Study Variables

	M	SD	Observed range
Parent–adolescent interaction (GPACS)			
Collaboration	2.79	.90	1.00–5.00
Punitive control	2.21	.83	1.00–4.50
Disorientation	1.35	.47	1.00–3.25
Caregiving/role-confusion	2.17	1.02	1.00–5.00
Provision of support to parents (CECA-RC)			
Instrumental	1.84	1.11	1.00–5.00
Emotional	2.45	1.16	1.00–5.00
Maternal caregiving helplessness (CHQ)			
Caregiving helplessness total score	88.46	15.60	56.00–124.00
Quality of love relationships (ADAPFA)			
Overall quality of romantic relationships	2.76	1.20	1.00–5.00
Romantic relationship conflict (CTS2)			
Adolescent abuse toward romantic partner	16.08	17.96	0–96.00
Romantic partner abuse toward adolescent	14.86	16.74	0–83.00
Psychopathology			
Severity of overall psychiatric morbidity (SCID-axis I)	2.78	3.01	0–18.00
Depressive symptoms (CES-D)	14.47	9.26	0–48.00
Dissociative symptoms (DES)	15.34	13.29	1–82.50
WAIS Similarities score	22.54	4.03	11–30
Cumulative sociodemographic risk	1.38	1.03	0–3

Note. GPACS = Goal-Corrected Partnership in Adolescence Coding System; CECA-RC = Childhood Experiences of Care and Abuse Role Confusion; CHQ = Caregiving Helpless Questionnaire; ADAPFA = Adolescent to Adult Personality Functioning Assessment; CTS2 = Revised Conflict Tactics Scale; SCID = Structured Clinical Interview for DSM-IV; CES-D = Center for Epidemiological Studies Depression scale; DES = Dissociative Experiences Scale; WAIS = Wechsler Adult Intelligence Scale.

not being classified as HH significantly increased 164% ($\chi^2 = 8.82, p = .003$). In contrast, with every 1-point increase in Punitive Control, the odds of the adolescent being classified as HH increased by 138% ($\chi^2 = 4.17, p = .041$). Neither Disorientation nor Caregiving/Role Confusion was related to HH classification ($\chi^2 = .71, p = .40; \chi^2 = 1.57, p = .52$).

Disorganization in infancy Disorientation at age 20 years was uniquely associated with classification as disorganized in infancy ($\chi^2 = 6.78, p = .01$). Infant disorganization was not significantly related to Collaboration, Punitive Control or Caregiving/Role Confusion ($\chi^2 = 1.32, \chi^2 = .00, \chi^2 = .31$, respectively, all *ns*). For every 1-point increase in Disorientation, the odds of having been classified disorganized in infancy increased by 147%.

Adolescent–Parent Interaction and Measures of Role Confusion

Provision of emotional and instrumental support to parent (CECA-RC). Linear regression analyses indicated that Caregiving/Role Confusion was the only aspect of interaction positively associated with providing emotional support to the parent (Table 3). Both Caregiving/Role Confusion and Disorientation were positively related to giving instrumental support to the parent (Table 3). Collaboration was significantly *negatively* related to the adolescent’s giving instrumental support. Punitive Control in adoles-

cent–parent interaction was not associated with giving any form of support to the parent (Table 3).

Maternal report of caregiving helplessness (CHQ). The CHQ was significantly related to both Caregiving/Role Confusion and Punitive Control in adolescent–parent interaction, mirroring results in younger age groups (George & Solomon, 2008). Neither Collaboration nor Disorientation was related to caregiving helplessness (Table 3).

Adolescent–Parent Interaction and Quality of Functioning in Romantic Relationships

Overall quality of love relationships (ADAPFA). The overall quality of adolescent romantic relationships was significantly *negatively* related to Disorientation, Caregiving/Role Confusion, and Punitive Control in interaction with the parent (Table 3). Quality of romantic relationships was significantly *positively* related to adolescent–parent Collaboration (Table 3).

Extent of abuse in adolescent romantic relationships (CTS2) Consistent with the ADAPFA results, Collaboration in interaction was significantly *negatively* related to both abuse *by* adolescents toward their romantic partners and abuse *toward* the adolescent by their partners (Table 3). In contrast, punitive interaction was significantly *positively* related to abuse by the adolescents toward their romantic partners and abuse toward the adolescents by their partners (Table 3). Caregiving/Role Confusion in

Table 3
Results of Regressing the Four GPACS Factors on Continuous Independent Variables

		Adolescent–parent interaction factors (GPACS)						
		Factor 1 Collaboration	Factor 2 Punitive Control	Factor 3 Disorientation		Factor 4 Caregiving/ Role Confusion		
		β	β	(β)	β	(β)	β	
CECA-RC	Instrumental role confusion	-.19*	.14	(.08)	.26**	(.26*)	.25**	(.20*)
	Emotional role confusion	-.13	.13		.12		.26**	
CHQ	Maternal caregiving helplessness	-.11	.17*		.07		.28**	
CTS	Adolescent abuse to romantic partner	-.19*	.22*	(.18*)	.07	(.09)	.20*	(.18)
	Romantic partner abuse to adolescent	-.19*	.32**	(.22*)	.14	(.01)	.03	(.06)
ADAPFA	Quality of romantic relationships	.25**	-.21*	(-.16)	-.32**	(-.31**)	-.27**	(-.22*)
SCID-I	Overall psychiatric morbidity	-.04	.19*		.07		.16*	
CESD	Depressive symptoms	-.25**	.23*	(.14)	.19*	(.29**)	.29**	(.27**)
DES	Dissociative symptoms	-.26**	.19*	(-.04)	.37***	(.44***)	.23*	(.22*)

Note. N = 120; All betas presented are from linear regression analyses controlling for sociodemographic risk. If collaboration made a significant contribution to the outcome, additional betas in parenthesis indicate the effect size after controlling for collaboration. GPACS = Goal-Corrected Partnership in Adolescence Coding System; CECA-RC = Childhood Experiences of Care and Abuse Role Confusion; CHQ = Caregiving Helplessness Questionnaire; CTS = Conflict Tactics Scale; ADAPFA = Adolescent to Adult Personality Functioning Assessment; SCID-I = Structured Clinical Interview for DSM-IV; DES = Dissociative Experiences Scale.
* $p < .05$. ** $p < .01$. *** $p < .001$.

interaction was also significantly positively related to abuse *by* the adolescents toward their romantic partners, but was not related to abuse *toward* the adolescent by their partners (Table 3). Disorientation in adolescent–parent interaction was not related to abuse in romantic relationships (Table 3).

Adolescent–Parent Interaction and Psychopathology

Depressive and dissociative symptoms (CES-D and DES). Collaborative interaction was associated with fewer symptoms of depression and dissociation in late adolescence. In contrast, punitive, disoriented, and caregiving/role-confused interactions were all significantly related to elevations in depressive and dissociative symptoms (Table 3).

Overall psychiatric morbidity (SCID-I). Descriptively, study participants had high rates of Axis I psychiatric diagnoses and, consistent with the larger psychiatric literature, high rates of comorbidity (Kessler, Chiu, Demler, & Walters, 2005). Thirty-two percent had no Axis I psychopathology, 30% met criteria for one Axis I diagnosis, 22.5% for two Axis I diagnoses, and 15.5% for three or more diagnoses. Adolescents who exhibited higher levels of Punitive Control or Caregiving/Role Confusion in interaction had significantly more severe overall psychiatric morbidity on the SCID-I (Table 3). Disorientation in interaction was not significantly associated with severity of overall psychiatric morbidity. In addition, Collaborative interaction was not significantly related to Axis I psychopathology (Table 3).

Additional Questions

Collaboration versus disorganized-controlling behavior? One further question that emerged from the pattern of results is whether the collaboration factor alone might account for the outcomes. Collaboration was significantly associated with 8 of the 12 outcome variables, including Unresolved and HH states of mind (but not infant disorganization) and six of the nine continuous outcome variables, as shown in Table 3. To assess this possibility, collaboration was entered as a control variable and the eight outcomes were again regressed on the significantly related disorganized factors.

In relation to disoriented interaction, after controlling for collaboration, all significant results remained significant (for continuous outcomes, see Table 3; Unresolved $\chi^2 = 4.72$, $p = .04$). In relation to caregiving/role-confused interaction, only the prediction of adolescents' abuse toward their

romantic partners no longer reached significance with collaboration controlled (Table 3). All other results remained significant.

The relations between punitive interaction and adolescent outcomes were most affected by controlling for collaboration because the collaboration factor was most strongly correlated with the punitive factor (Figure 1). With collaboration controlled, punitive interaction no longer added to the prediction of HH states of mind ($\chi^2 = .69$, *ns*), overall quality of romantic relationships, depressive symptoms, or dissociative symptoms (Table 3). Similarly, however, with *punitive interaction* controlled, collaboration also did not add to prediction of HH states of mind ($\chi^2 = 1.23$, *ns*) or depressive symptoms ($\beta = -.16$, $p = .09$). Thus, rather than collaboration alone accounting better for HH states of mind and depressive symptoms, it was the variance shared by less collaboration and more punitive behavior that was associated with HH states of mind and depression. This was not true of adolescent dissociative symptoms or overall quality of romantic relationships, however, for which levels of collaboration accounted for unique variance beyond that accounted for by punitive interaction (Table 3). In addition, punitive interaction with the parent accounted for unique variance in the adolescent's abusive behavior to and from romantic partners, beyond that accounted for by level of collaboration.

Adolescent versus parent behavior? Because adolescent and parent behavior factored together, the resulting dyadic variables raise the additional question of whether adolescent behavior is indeed reflected in these findings or whether they are primarily driven by the parent's behavior. Therefore, in a final set of analyses, the four individual adolescent scales and the four parallel parent scales were analyzed individually in relation to the 12 outcome variables. Results described next revealed that analyses of the four adolescent scales largely replicated the pattern of results yielded by the four dyadic latent factors, while analyses of the parent scales did not.

Of the six constructs related to the latent factor for disorientation, the adolescent's odd, out-of-context, or disoriented behavior was related to all six, including disorganization in infancy (odd behavior $\chi^2 = 4.30$, $p = .04$; disoriented $\chi^2 = 4.73$, $p = .03$), unresolved states of mind in late adolescence (odd behavior $\chi^2 = 6.30$, $p = .01$; disoriented $\chi^2 = .08$, *ns*), poor quality romantic relationships, instrumental role confusion, and depressive symptoms and dissociative experiences (β s = .18–.32, p s = .04–.001). In contrast, *parental* odd or disoriented behavior

did not reach significance in relation to any of these outcomes (χ^2 s = .01–2.49, all *ns*; β s = .03–.17, all *ns*).

Of the eight constructs related to the latent factor for role confusion, caregiving behavior by the adolescent toward the parent was related to seven, including emotional and instrumental role confusion, maternal caregiving helplessness, poor quality romantic relationships, overall psychiatric morbidity, and depressive and dissociative symptoms (β s = .20–.32, *ps* = .03–.002). Parental role-confused behavior was significantly related to three of those outcomes, including the adolescent's report of emotional role confusion (β = .20, *p* = .03), adolescent depressive symptoms (β = .31, *p* = .001), and adolescent dissociative symptoms (β = .24, *p* = .03). However, only the dyadic factor score for role confusion captured the caregiving adolescent's increased risk of abusive behavior toward a romantic partner (Table 3), suggesting that the particular patterning of the role-confused dyadic interaction was important to the prediction of the adolescent's aggression toward a partner. The degree of role confusion displayed by the parent was also a stronger predictor of adolescent depression than was the adolescent's own caregiving behavior (β = .31, *p* = .001 vs. β = .19, *p* = .05).

Of the eight constructs related to the latent factor for punitive control, adolescent punitive behavior toward the parent was related to six of the eight, including maternal caregiving helplessness, adolescent abuse to partner, partner abuse to adolescent, overall psychiatric morbidity, and depressive symptoms (β s = .20–.29, *ps* = .04–.02), as well as to HH states of mind on the AAI (χ^2 = 5.33, *p* = .02). Parental punitive behavior made a significant contribution to only two of the eight outcomes related to the latent factor, including partner abuse to adolescent (β = .35, *p* = .001) and the extent of adolescent depressive symptoms (β = .21, *p* = .03). Notably, however, the parent's punitive behavior toward the adolescent was a stronger predictor of the adolescent being abused by a partner (β = .35, *p* = .001) than was the adolescent's punitive behavior toward the parent (β = .22, *p* = .05), suggesting that whether mother or adolescent was expressing the hostility was important to capture in relation to predicting partner abuse. In addition, only the dyadic factor score for punitive behavior was related to adolescent dissociation.

These separate analyses of adolescent and parent behavior confirm that adolescent behavior was a primary contributor to the obtained pattern of adolescent outcomes. However, as noted above, the

assessment of parental behavior added to the prediction of the adolescent's behavior in romantic relationships, both in relation to *abuse of* and *abuse by* a romantic partner. In fact, parental punitive behavior was the strongest single predictor of abuse by a partner in the study, and parental role-confused behavior was the strongest single predictor of adolescent depression. Finally, the four dyadic factor scores were strongest in capturing the overall pattern of findings, yielding 12 β coefficients of .25 or above, while the four adolescent scales yielded only 6 β coefficients of .25 or above for continuous measures. Thus, the dyadic latent variables provided the most powerful route to capturing the pattern of outcomes associated with deviations in aspects of adolescent–parent interaction.

Discussion

Results of this study demonstrate that the three aspects of disorganized interaction described in infancy and childhood can be reliably observed in late adolescence and carry important implications for healthy interpersonal functioning. As in childhood, three distinct aspects of disturbed interaction could be described, reliably coded, and distinguished in a factor analytic model. This finding extends previous literature by demonstrating that aspects of disorganization previously described up to age 8 years also characterize adolescents' interactions with their parents. Although the three types of disorganization were best modeled as distinct aspects of interaction, they were also modestly correlated, indicating that more than one type of disorganized behavior could be shown in the same relationship.

Results of the CFA also confirmed that the latent factors were dyadic in nature, with particular deviations in adolescent behavior likely to be mirrored in similar or complementary parental behaviors. While the CFA confirmed this dyadic patterning of the interactions, analyses of the individual adolescent and parent scales also revealed that when adolescent behaviors were considered alone, a very similar pattern of results emerged. Thus, the centrality of adolescent behavior in driving the pattern of adolescent outcomes is consistent with the assessment of attachment at earlier ages, which focuses on child behavior alone. However, the dyadic factors yielded much stronger results than the adolescent scales alone, suggesting that future work should capture the contributions of both partners. Assessment of parental behavior was also

particularly important in predicting abusive behavior in intimate relationships.

Our findings also indicated that each aspect of disorganized-controlling interaction was uniquely associated with other measures assessing similar constructs. Disorientation in adolescent-parent interaction best represented the classic conceptualization of attachment disorganization described in infancy. As in infancy and childhood, disorientation was characterized by odd, out-of-context behavior (e.g., suddenly freezing with arms up during interaction with mother). Disorientation was significantly related to the occurrence of disorganized behavior in infancy 20 years earlier. The odds ratio of 1.47 indicated that an adolescent who was 250 above the mean of disoriented interaction (score of 2.29) was 3 times more likely to have been classified disorganized in infancy with the same parent than an adolescent who showed no disorientation in interaction. In addition, disorientation in interaction was associated with concurrent signs of Unresolved loss or trauma on the adolescent's AAI. These findings provide construct validity for disorientation as a behavioral measure of disorganized attachment.

Disorientation was also related to the provision of undue instrumental help to parents, one indicator of role confusion in the relationship. However, the mothers of more disoriented adolescents did not describe themselves as experiencing more helplessness in relation to childrearing on the CHQ, as did mothers of more caregiving or punitive adolescents. This may indicate that rather than experiencing themselves as helpless, more disoriented mothers exhibit a lack of investment in providing care, which in turn draws the adolescent into giving instrumental help but which defeats the organization of caregiving or punitive behaviors designed to increase the parent's attention and involvement. Disoriented interaction with the parent was also associated with poor quality relationships with romantic partners, though not with partner abuse, again suggesting a more distanced relational stance. Importantly, disoriented interactions with the parent were not associated with overall psychopathology, confirming that odd, out-of-context behavior toward the parent is not simply the by-product of severe psychopathology in general. Disoriented interactions were, however, particularly strongly associated with dissociative symptoms. To our knowledge, disoriented interactions in adolescence have not been described before and, in light of these findings, deserve increased attention.

Neither punitive interaction nor caregiving/role-confused interaction was preceded by disorga-

nization in infancy. This finding suggests that controlling behavior develops among many children who do not appear disorganized in infancy, consistent with data from the NICHD ECCRN (2001), which found only a modest link between attachment disorganization at 15 months and punitive, caregiving, or disorganized behavior at age 3. In addition, neither punitive nor caregiving interaction was related to Unresolved loss or trauma on the AAI. Thus, the Unresolved classification does not appear to be sensitive to the representational components of controlling behavior.

Punitive interactions were related concurrently to HH classification on the AAI, indicating a pervasive lack of integration in more punitive adolescents' evaluations of attachment relationships. Thus, these results extend the large body of work on aggressive youth in indicating that punitive behavior is also associated with pervasive difficulties in integrating one's thinking about attachment relationships, though not necessarily one's discourse in relation to loss or trauma. In addition, given the relation between parental HH representations and infant disorganization (Lyons-Ruth, Yellin, et al., 2005), the relation between HH states of mind and punitive control suggests that punitive adolescents may be more likely to establish disorganized attachments with their infants. Punitive control was also associated with poor quality romantic relationships that included abuse to and from the partner, parallel to the reciprocal punitive control captured by the dyadic factor score. In particular, adolescents who had punitive parents were more likely to be abused by their partners.

Punitive adolescent-parent interaction was also associated with the parent's experienced helplessness in the parenting role, with increased adolescent depressive and dissociative symptoms, and with overall psychiatric morbidity on Axis I. These findings are consistent with the correlates of punitive control at earlier ages, as reviewed earlier, and extend these findings into the late adolescent period. The relation to overall psychopathology is particularly striking because psychiatric diagnoses on Axis I do not include conduct disorder (diagnosed in childhood) or antisocial personality disorder (assessed on Axis II). Therefore, the psychiatric morbidity indexed in these findings is not simply a reflection of aggressive psychiatric symptoms, but reflects additional forms of impairment.

Caregiving/role-confused interactions have not previously been assessed in adolescence but demonstrated good construct validity in relation to the adolescent's self-report of providing emotional and

instrumental support to the parent, as well as in relation to the parent's own self-reported experience of parental helplessness on the CHQ. Caregiving/role-confused interactions with the parent were also associated with poor functioning in other domains, including abuse toward romantic partners, increased depressive and dissociative symptoms, and increased psychiatric morbidity. Because taking undue responsibility for the parent can be mistaken clinically for especially mature behavior, these clear associations between adolescent caregiving behavior and maladaptation are striking and warrant further attention.

Adolescent caregiving behavior was not related to HH states of mind on the AAI or to Unresolved states of mind. Thus, the attachment representations of caregiving adolescents remain elusive. However, *mothers* who exhibit role confusion in discussing their relationship with the adolescent exhibit unresolved loss, but not unresolved trauma, on the AAI (Vulliez-Coady, Obsuth, Torreiro Casal, Ellertsdottir, & Lyons-Ruth, 2013), underscoring the need for future work on the developmental pathways associated with caregiving/role confusion.

Similar to other studies, collaborative communication emerged as a clear protective factor (Kobak et al., 1993). Collaborative communication was positively related to the quality of adolescent romantic relationships and negatively related to adolescents' Unresolved states of mind, HH states of mind, provision of undue instrumental support to parents, abusive behavior to and from romantic partners, and symptoms of depression and dissociation.

Unexpectedly, high levels of collaboration were not associated with reductions in overall psychiatric morbidity on Axis I. Studies of attachment in adolescence have generally not reported on psychiatric diagnostic morbidity, so there is little with which to compare the present results. Carlson (1998) reported that disorganization in infancy predicted a similar measure of overall psychopathology on Axis I at age 19 years, but *security* in infancy was not specifically examined. Axis I disorders include a variety of depressive and anxiety diagnoses, as well as substance abuse, eating disorders, bipolar disorders, and schizophrenia (not represented in this sample). It may be that a more differentiated assessment of individual Axis I disorders would reveal relations to some disorders but not others.

While collaboration was clearly protective, results also indicated that a general assessment of collaboration alone does not capture the specificity of relations between particular forms of disturbed interaction and particular kinds of disturbed out-

comes. For 11 of the 12 outcome variables, forms of disorganized adolescent-parent interaction accounted for unique variance not explained by collaborative behavior. For the 12th variable, HH state of mind, more punitive interaction and less collaborative interaction accounted equally well for the same variance. These results suggest that global ratings of collaboration may not be as sensitive to the disturbances seen in high-risk samples as the more focused scales for punitive, disoriented, and caregiving behavior. Adolescent caregiving behavior, in particular, produces a form of dyadic collaboration that must be carefully differentiated from collaboration in which the parent is taking the responsible role. Current results, then, suggest that disoriented, punitive, and caregiving behavior are best conceived as distinct dimensions of interactive behavior rather than as part of a single linear continuum that can be captured by the construct of collaboration alone.

Previous attachment research has tended to work within a framework of classification categories. However, these results indicate that the analysis of disorganization in adolescence should not be pursued within the traditional framework of a single disorganized category. The several distinct forms of disorganized-controlling behavior, as well as the modest correlations among these forms, indicate the need for continuous dimensions rather than a proliferation of mutually exclusive categories. Work on the factor structure of the AAI indicates that AAI data, at least in normative samples, may be most consistent with an underlying dimensional rather than taxonic model (Roisman, Fraley, & Belsky, 2007). Investigating how the behavioral dimensions assessed here map onto the continuous AAI dimensions reported by Roisman et al. (2007) will be an important direction for future work.

One disadvantage of continuous scales, however, is that it is difficult to arrive at prevalence rates for *clinically meaningful* levels of disorganized-controlling interaction in adolescence. Prevalence rates are important to clinical applications to estimate the public health burden involved in treating affected individuals. In one recent clinical study, both continuous and categorical approaches to disorganized-controlling interaction were employed (Lyons-Ruth, Choi-Kain, Bertha, Armerding, & Gunderson, 2013). The prevalence of disorganized-controlling patterns was 15% among 20 young adults with no current psychiatric diagnosis and 76% among 17 young adults with a diagnosis of borderline personality disorder. Thus, the prevalence

rates for disorganized-controlling behavior in late adolescence are likely to be consistent with the prevalence rates for disorganized-controlling behavior in normative and clinical samples at younger ages.

It is open to debate whether the aspects of behavior identified here are best thought of as *aspects of disorganized attachment* or simply as deviations in parent-adolescent interaction. Because these behaviors have been considered to be attachment behaviors at younger ages, we followed that usage and labeled them as varieties of disorganized attachment in adolescence. However, the current findings clearly identify each of these aspects of interaction as markers of risk in multiple domains. Further work examining the intergenerational predictive significance of these disturbed interactions for the quality of parenting will be important to informing their place in an attachment framework.

There are several limitations of this study that should be noted and that point to important further directions for future work. First, other than the prediction of disorientation from infant disorganization in infancy, the findings are based on cross-sectional data. Thus, it is not possible to infer direction of causality. Future work using both longitudinal and randomized intervention designs will be needed to assess direction of effects. Second, the sample contained too many single mothers to assess interactions with fathers. Fathers and mothers may play different roles and interact differently with their children (Schoppe-Sullivan et al., 2006), so future work should assess whether there are differences in disorganized behavior displayed with fathers and with mothers. As noted, the sample also included a substantial number of families at sociodemographic disadvantage. Additional studies are needed to assess whether similar relations to negative outcomes occur in more normative samples. Furthermore, this more disadvantaged sample was not well suited to developing scales for forms of organized but insecure behavior in adolescence (avoidance or ambivalence). The omission of these scales remains a gap to be filled in future work. Finally, we can make no assumptions that the three disorganized factors assessed here are continuous with, or mean the same thing as, the similarly defined behaviors observed at preschool and school age. Behavioral transformation has been a prominent feature of disorganized attachment behavior over time (e.g., infancy to childhood). Such transformations in both behavior and meaning may also occur in the transitions to adolescence and adulthood, making the study of continuity and change

in disorganized behavior a critical area for future study.

With these limitations in mind, the current study fills an important gap in the developmental literature by introducing and validating a reliable observational measure of disorganized attachment behavior in adolescence. The findings fill the gap in attachment research created by the absence of observational assessment methods after age 8 years. We found that analogues of the controlling-punitive, controlling-caregiving, and behaviorally disorganized attachment patterns, now described only through age 8 years, can also be reliably assessed in adolescence, opening the door for assessing continuity and change in trajectories of disorganized behavior.

In addition, the GPACS breaks new ground in differentiating adolescent disoriented and caregiving behavior from more typically studied hostile interaction, and linking all three aspects of disturbed interaction to impairment in key developmental outcomes. Thus, the GPACS provides a new tool for both clinicians and researchers to identify adolescents at risk for psychopathology and to develop family-oriented prevention and treatment approaches to address the upsurge in psychopathology that occurs during adolescence (e.g., Ge, Lorenz, Conger, Elder, & Simons, 1994).

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