


Validity of the School-age Assessment of Attachment for moderate-risk, rural early adolescents

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Abstract

Introduction: This study provides evidence of validity of the *School-age Assessment of Attachment* (SAA) through longitudinal comparison with the *Preschool Assessment of Attachment* (PAA) and with concurrent attachment assessments and measures of risk and parenting. Determining which assessment had the greatest validity with this moderate-risk sample would be of benefit to those working with troubled young people and their families.

Hypotheses: Children's SAA classifications were expected to correspond to their PAA, a behavioral attachment assessment, parenting, and risk. An attachment questionnaire was predicted to not accurately indicate children's risk status.

Design: The design was an 8-year longitudinal follow-up of rural Appalachian American preschoolers.

Method: The participants were 21 children and their caregivers. The PAA was completed at age 4. The SAA, a self-report questionnaire, and a parent-child conflict resolution task were completed at age 12. Parents completed assessments of depression, trauma, stress, and perceptions of helplessness.

Results: The PAA was related to the SAA and the dyadic behavioral task. The SAA was consistently associated with measures of parenting and family risk. The attachment questionnaire performed poorly for children with higher risk status, suggesting more (not less) sensitive and responsive parenting.

Keywords

Attachment, Dynamic-Maturational Model of Attachment and Adaptation (DMM), School-age Assessment of Attachment (SAA), adolescent, school age

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Validity of attachment assessments for moderate-risk, rural early adolescents: comparison of the School-age Assessment of Attachment (SAA), dyadic observation, and questionnaire methods

The Appalachian region of the United States is near the top of national lists for levels of poverty, depression, drug abuse, lower educational skills and attainment, and percentage of incarcerated adolescents and adults. Although these problems are often rooted in poverty, many individuals growing up in such conditions are successful and resilient. How do they accomplish this? One of the most robust protective factors appears to be secure attachment. However, this finding is more firmly established for younger than older children. Moreover, approaches to attachment that include disorganization focus less on resilience and adaptation for at-risk populations than Crittenden's (2008, 2015) Dynamic-Maturational Model of Attachment and Adaptation (DMM). Using a DMM framework, this study examines the longitudinal and construct validity of several methods of assessing attachment in early adolescence among rural, moderate-risk Appalachian American youth and their families. We conclude with implications for assessment in clinical contexts, as illustrated with a brief case report.

Attachment in school-age and adolescence

Bowlby (1969) conceived of attachment as a motivational system that was activated by threats to safety and well-being, resulting in attempts to gain comfort and security. In early childhood, separation from caregivers activates attachment and proximity-seeking to parents is increased. During middle childhood, children begin to develop more autonomy from their parents as they develop significant relationships with peers. The school years are also marked by the emergence of competition for social status and sexually motivated behaviors (Del Giudice & Belsky, 2010). As children approach adolescence, peer and romantic relationships become increasingly prominent and the goal-corrected partnership with parents involves greater negotiation (Hennighausen, Bureau, David, Holmes, & Lyons-Ruth, 2011). Children who have sensitive and responsive parents are thought to more easily weather developmental challenges, for example, bullying, romantic disappointment, and academic demands. Such children have a strong sense of felt security when on their own, and they can and do use their parents as a "secure base" when they feel threatened or experience sadness or worry (Kerns, Brumariu, & Seibert, 2011; Mayseless, 2005). Conversely, insecurity in adolescence has been linked to difficulties that include sexual risk-taking (Del Giudice & Belsky, 2010), findings that support Crittenden's (1997, 2015) conceptualization of attachment as meeting needs of both reproduction and comfort.

Assessing attachment in these age groups

The question remains, however, of how to assess attachment in school-age or early adolescent children, who are too old for the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978) and too young for the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985), the gold standard instruments. Narrative story-stem procedures have been used primarily for children 4 to 8 years of age. While some scoring systems have been associated meaningfully with children's adjustment and parental AAIs, story-stem classifications have limited associations with behavioral assessments of child security (Farnfield, 2014; Kerns et al., 2011). The Separation Anxiety Test (SAT) is perhaps the oldest projective story-telling assessment, originally devised for adolescents (Hansburg, 1972) but subsequently revised by others for use with preschoolers (Klagsbrun &

Bowlby, 1976). Although some validity data exist for the SAT, the number of variations in procedure and coding methods that have been utilized make conclusions difficult (Solomon & George, 2008). The Child Attachment Interview (CAI; Target, Fonagy, Shmueli-Goetz, Datta, & Schneider, 1998) was developed for 8- to 12-year olds and is a direct interview, whose questions were derived from the AAI. The CAI has discriminant validity for clinical status, and is associated with parents' AAIs and measures of adjustment (Shmueli-Goetz, 2014). The AAI itself is the most widely reported adolescent attachment assessment, though its use with adolescents is not without limitations (Hennighausen et al., 2011). A promising dyadic behavioral conflict resolution task, assessed via the Revealed Differences Task, has recently been developed for adolescents (Lyons-Ruth, Holmes, & Hennighausen, 2005). Self-report questionnaires have, of course, been developed for this age span. Kerns et al. (2011) conclude, however, that most assessments have not been extensively validated, while Shmueli-Goetz (2014) notes that assessment in these age groups remains a challenge. For these reasons, school age and early adolescence are "among the most important, and unexplained, developmental periods of attachment research" (Raikes & Thompson, 2005, p. 255).

Several other considerations are important to selecting a suitable assessment. First, does the assessment induce enough threat to activate the attachment system, in keeping with Bowlby and Ainsworth's ideas? Undoubtedly, questionnaires cannot do so, and some believe story-stem procedures are unlikely to do so (Crittenden, Kozłowska, & Landini, 2010). Second, is an attachment classification or score what is needed, or is richer information such as function and patterning preferable? Although potentially useful for tracking change, it is not clear whether either story-stem or CAI assessments provide the latter. And finally, has the instrument been validated with at-risk populations? Only the CAI and AAI have been used extensively with clinical groups. Also, with the notable exception of Farnfield's DMM coding procedures for story-stems, instruments nearly always use the concept of attachment disorganization. From an evolutionary perspective, wide variation in attachment should be expected, especially among at-risk children (Mayseless, 2005); yet, most clinical children will be found to be disorganized with ABC+D (disorganized) coding schemas. Thus, the disorganization concept may have less utility for treatment selection and planning than the array of DMM strategies that differentiate among the at-risk children (Crittenden, Dallos, Landini, & Kozłowska, 2014; Farnfield, 2014).

The SAA

The SAA (Crittenden, 2010) was eagerly awaited by clinicians and researchers who saw DMM theory as appealing for conceptualization and intervention purposes (Kozłowska & Elliott, 2014). It is a narrative assessment for 6- to 13-year olds that uses a semi-projective procedure. Like the Strange Situation, attachment-related threats increase gradually during the SAA, thus eliciting the child's self-protective strategy for coping with threat. The SAA is coded with DMM-AAI discourse analysis, adapted to younger children's linguistic competences. Of particular importance is noting which memory system motivates the child's affect and behavior during the interview, and also what discrepancies occur among memory systems. The coding process is briefly addressed below, but see Kozłowska and Elliott (2014) for further information.

The DMM of attachment and adaptation

The DMM is unique in positing that individuals' adaptation is facilitated over time by increasing cognitive and maturational capacities, thus requiring selection of self-protective strategies that are attuned to developmental stage and interpersonal context. This allows new strategies to organize at later ages (see Figure 1), particularly when the previous strategy is no longer adaptive in the child's

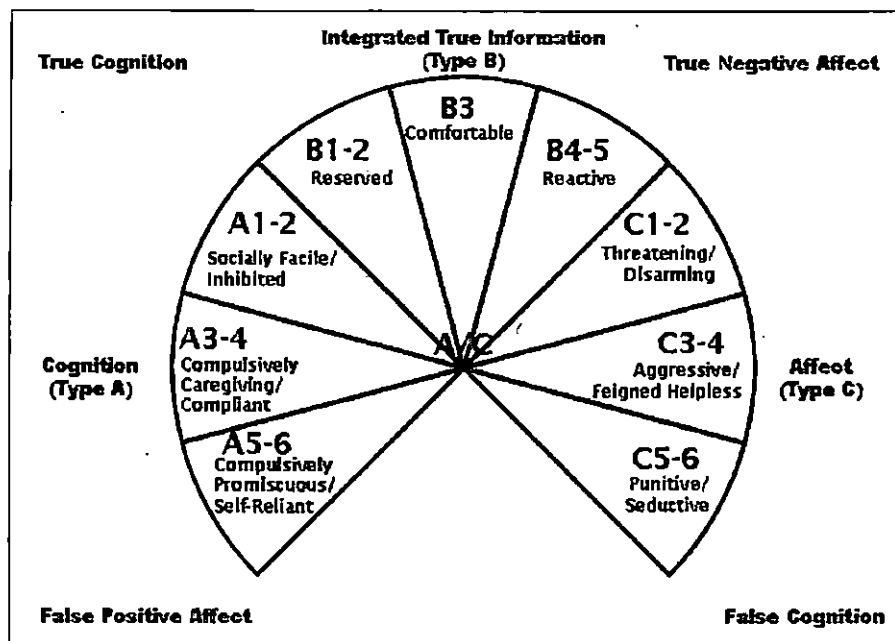


Figure 1. DMM strategies for school age children.
Dr. Patricia Crittenden, reproduced with permission.

present circumstances. Thus, the DMM is strongly biased toward adaptation and resilience, even for those developing in difficult circumstances. “Disorganization” barely appears in the theory because of the DMM’s grounding in Bowlby’s (1969) idea of attachment as evolutionarily adaptive. Crittenden believes it does not make sense that the most endangered people, who most need the advantages of attachment, would not develop a systematic (i.e. organized) way in which to manage danger to enhance survival.

Although quite eclectic, the DMM is, at its core, a theory of information processing, with dispositional representations (DRs) organizing behavior. (DRs are cognitive entities, like internal working models. However, they are complex and may change across time and context (see Shah & Strathern, 2014 for discussion of differences)). Crittenden (2008, 2015) extends the original Ainsworth A/avoidant patterns, stating that in higher risk situations children not only inhibit negative affect but also falsify positive affect (A+, compulsive strategies). When children face the withdrawal of a depressed parent, it is strategic to channel the anxious arousal that is experienced into bright, entertaining behavior. Children of depressed mothers must attend to and act on what others need, not what they want, feel, or need. Acting on DRs of temporally ordered information about others allows these children to experience some measure of protection and also reduces perception of their own distress while improving the relationship with the caregiver. The C/ambivalent strategy is viewed as the psychological opposite of A in the DMM. Somatic arousal and feelings, tied to contextual stimuli, are the most crucial sources of information, while inconsistent or even downright deceptive parental statements are not to be trusted. Children acting on Type C DRs are thought to exaggerate part of what they feel (fear/desire for comfort or anger), while inhibiting the opposite, in accord with what parents reinforce. This requires considerable cortical control! Even greater skill is required for children using C+ strategies, in which the split between displayed and experienced affect is more extreme. Type A+ and C+ strategies indicate higher risk because: (a)

they have been empirically demonstrated to be associated with familial threats (e.g. Crittenden, Claussen, & Kozłowska, 2007), and (b) because they are apt to be more rigidly applied across situations, thus sometimes being maladaptive. This may be because the information processing demands needed to use them are more intensive. Children using a Type B/secure strategy, on the other hand, live in trustworthy and safe environments and can take the time to process opposing DRs. For example, a school-age child might want to tell the teacher when another child is mean (motivated by feelings), but have learned that this option is not likely to have a positive result (cognitive information); thus, if the child is using a B strategy, he/she can think through the options to find a solution that best solves the problem in the immediate context.

Our study

This study uses DMM theory, while making use of assessments that are from the ABC+D tradition. In doing so, the relative strengths of assessments from both perspectives are explored, particularly in relation to measures of family and parenting risk. These measures should be associated with the attachment assessments in systematic, a priori ways, if they are to demonstrate construct validity. Additionally, emphasis is placed on the assessment of attachment in the school years and early adolescence, an under-studied but developmentally important period. Our sample of moderate-risk, Appalachian youth can highlight the adaptive advantages of self-protective attachment strategies, even insecure strategies.

Hypotheses. We predicted the following:

1. Children using high-risk insecure attachment strategies in the Preschool Assessment of Attachment (PAA, a DMM assessment) at 4 years of age would continue to use high-risk strategies at 12 years of age in both the DMM SAA interview and a clinically informed ABC+D behavioral assessment;
2. Children using high-risk attachment strategies in DMM assessments at age 4 and at age 12 years would not rate their parents as any less available and supportive on child-report questionnaires than children using low-risk strategies; and
3. At 12 years of age, interview and behavioral attachment assessments would be more consistently related to family risk and to parenting perceptions than would the questionnaire method.

Design. The design was a longitudinal study, using multi-method assessment. Attachment was assessed at two ages, with four instruments. Family risk was assessed at both time points.

Method

Participants

This study is part of a larger study in which the children were seen at 4 and 12 years of age. All phases of the study received approval from the university's Internal Review Board. Families were originally recruited through community announcements and local preschool programs serving low-income families in a small town in rural Appalachia, the United States. Participants were given monetary compensation for their participation.

During the first phase of data collection, 54 preschoolers ($M = 4.5$ years, $SD = .40$) and their primary caregivers (49 mothers, 5 fathers) volunteered and participated. Clinical cases were not specifically recruited nor were they excluded. Of the children, 58% were boys and over 90% were

Caucasian. Of families, 56% were receiving public assistance. Of parents, 55% were employed, most had attended some college, and 64% were married. The mean parent age was 30.0 ($SD = 6.0$). This will be referred to as age 4 data.

Roughly 8 years later, 21 families participated again (20 mothers, 1 father). Of children, 52% were boys and the average age was 12.0 years ($SD = 1.04$). Of the parents, 38% were employed, and 52.4% were married. The mean age of parents was 37.52 ($SD = 7.41$). This will be referred to as age 12 data. The majority of families not participating had moved out of the area or could not be located, though a few declined to participate. These tended to be families whose children used Type C strategies.

Procedure

Families received an explanation of the study's purpose and procedures and informed consent was obtained before beginning the 2.5 hour sessions at each age.

Assessments. As the focus of this article is comparison of attachment assessments, these are discussed first, followed by measures of family risks and perceptions of parenting that, theoretically, should be associated with attachment. Finally instruments measuring potential confounds are described. The PAA classifications at 4 years are reported here because they test the longitudinal validity of the age 12 attachment assessments. Family sociodemographic risk and parental depression measures were completed at both time points. All other assessments were completed at age 12.

Attachment was first assessed when children were 4 years old via Ainsworth's Strange Situation procedure (Ainsworth et al., 1978), classified by Crittenden's (2004) *Preschool Assessment of Attachment*. All videotapes were coded by the first author, who had established inter-rater reliability. Eleven children were coded independently by a second trained coder, resulting in 91% agreement for exact subcategory (i.e. C1–2 versus C3–4) (Cohen's $\kappa = .87, p < .000$). Coders were blind to other information about the families. Sixteen children were assigned to Type B, 20 to A, 18 to C and 5 to an A/C combination, meaning both strategies were displayed in alternating form (Kidwell, Young, Hinkle, Ratliff, & Marcum, 2010).

In order to determine which assessment of attachment would provide the most meaningful information for early adolescents, children completed three assessments, as described below.

In the *School-age Assessment of Attachment*, the researcher showed seven pictures displaying a gender-matched child in situations of increasing developmentally salient threat, for example, rejection by a friend or the father leaving home. Children were asked to tell both an imagined and real story in response to each card. The transcripts are coded using DMM-AAI discourse analysis (Crittenden & Landini, 2011) and the SAA coding manual (2010). Each discourse marker is associated with one of six memory systems (procedural, imaged, semantic, connotative language, episodic, and reflective integration). The classification method requires documentation of a particular strategy being used in at least three of six memory systems. For example, children using an A+ strategy tend to show false-positive affect when discussing distressing topics and take responsibility for bad things that have occurred to them, reflecting evidence in procedural and semantic memory, respectively. (See Kozłowska and Elliott (2014) for a more detailed description of administration and coding procedures.) Coders were blind to other information about the specific families. The first author, a reliable coder on multiple DMM assessments, trained another coder over a 9-month period. This included leading the discussion for coding the first 15 cases via consensus. Inter-rater agreement was 100% on exact classification for six cases coded independently. The distribution of SAA classifications can be seen in Table 1. In other studies, the SAA discriminated between clinical and normative status (Crittenden et al., 2010; Crittenden, Robson, & Tooby, 2015;

Table 1. School-age Assessment of Attachment strategy distribution.

	Frequency (N = 21)
A+	8
A1-2	1
B	7
C1-2	1
C+	2
A/C	2

Kozłowska & Elliott, 2015; Kwako, Noll, Putnam, & Trickett, 2010; Nuccini, Paterlini, Gargano, & Landini, 2015).

The same adolescents completed the *Security Scale* (Kerns, Aspelmeier, Gentzler, & Grabill, 2001), a 15-item questionnaire assessing their perceptions of attachment security with their primary caregiver (i.e. mother for almost all participating children). For each item, subjects first chose one of two statements. (e.g. "Some kids find it easy to trust their mom BUT other kids are not sure if they can trust their mom.") Then they rated whether the chosen statement was "sort of true for me" or "really true for me." This format was expected to minimize socially desirable responding. Each item was then scored from 1 to 4, with higher scores indicating greater perception of security. The Security Scale is a widely used assessment of attachment for children. Cronbach's alpha for this sample was .80, which is similar to that obtained for other samples of early adolescents (Kerns et al., 2001; Kerns et al., 2011). In a community sample, the Security Scale was associated with a story-stem assessment and with parenting. Additionally, higher Security Scale scores were associated with lower child-reported depression (Kerns et al., 2011).

After a 2-hour separation, the *Revealed Differences Task* was conducted. This involved a 5-minute reunion followed by a 10-minute discussion involving everyday "heated" topics, elicited via separate questionnaires of parent and teen. Standardized directions were given to each dyad, asking them to be sure both expressed their point of view about the two points of greatest disagreement. The most common disagreements stemmed from fighting with siblings and cleaning the bedroom. Hennighausen et al. (2011) introduced this task to fill a gap in the literature for adolescent attachment, stating that how the dyad discussed and resolved conflict would reveal developmentally salient, secure base behavior.

When used with their coding scheme, they believe the task elicits "distortions in interaction described in the disorganized attachment literature at earlier ages" (Hennighausen et al., 2011, p. 225). Their coding scheme is the Goal Corrected Partnership in Adolescence Coding System (GCPACS; Lyons-Ruth et al., 2005), which includes both 5-point scales and categorical classifications. Combining published information on the GCPACS ABC+D scheme and DMM concepts (particularly false-positive affect), our coding guidelines consisted of five descriptive categories. The latter included two patterns we deemed to correspond to low-risk attachment strategies (collaborative and containing/minimizing) and categories potentially denoting greater difficulties (controlling parent/stifled child, abdicating parent/caregiving child, entangled/punitive parent and child). Most dyads were categorized by consensus, with five coded independently. Raters agreed very well (100%) for assigned conflict resolution category.

Significant associations were obtained between GCPACS categories for the Revealed Differences Task and the four ABC+D AAI categories (Hennighausen, 2011). They were also associated with depressive and dissociative symptoms, and quality of romantic relationships (Obsuth,

Hennighausen, Brumariu, & Lyons-Ruth, 2014). Research with the GCPACS is particularly notable by being informed by at-risk, low-income, and clinical adolescents.

Eight variables were aggregated to create an index of socioeconomic risk at each phase of data collection. These included parent not graduated high school, parent unemployed, family on public assistance, family received public assistance for more than 4 years, single parent, and parent perception of frequent and/or intense financial stress. The mean index score at age 4 was 3.39 ($SD = 1.73$) and at age 12 was 2.81 ($SD = 2.14$). For analyses at age 12, a total score was created to indicate cumulative sociodemographic risk over the two time points ($X = 5.62$, $SD = 3.26$).

The *Center for Epidemiological Studies Depression Scale* (CES-D; Radloff, 1977) was used to assess parental depression. It consists of 20 items answered on a 4-point Likert-type scale, with higher scores indicating greater symptoms over the previous 2 weeks. When children were both 4 and 12 years old, approximately one-third of parents reported symptoms above the clinical cut-off of 15. Indeed, parents' depression scores remained remarkably stable over time ($r_{(21)} = .87$, $p > .001$). For analyses at age 12, an average depression score over the two time points was created ($X = 14.62$, $SD = 10.74$). Internal consistency reliability is typically quite good for the CES-D, as it was for our sample (mean alpha for the two assessments = .90).

Parents were asked to discuss their childhood histories in a semi-structured interview. Trauma was coded from these interviews using the *Traumatic Antecedents Interview's* coding procedures (Herman, Perry, & Van der Kolk, 1989), as proposed by Fisher (2000). Coders rated 10 areas, including physical, sexual, and emotional abuse; physical and emotional neglect, domestic chaos, discord, or violence; losses; and significant separations. Specific predefined criteria are provided for the variables in the instrument's rating manual. Five interviews were coded independently by two raters, with 100% agreement on trauma-specific scores. Both coders were blind to other study variables. Scores were summed and the average score for our parents was 4.33 ($SD = 3.55$).

On the *Life Experiences Checklist* (Cowen, Wyman, Work, & Parker, 1990), parents indicated which of 44 significant family stressors had occurred over their child's lifetime. Divorce/separation and frequent parental arguments were the most common familial stressors mentioned. Total lifetime stressors were summed, with an average score of 6.00 ($SD = 4.39$).

Parents completed the *Caregiver Helpless Questionnaire* (CHQ; George & Solomon, 2011). The CHQ is a measure from the ABC+D approach that is believed to assess parent's mental representations of caregiving. The CHQ includes 25 items answered with a 5-point Likert-type scale. Because of inadequate internal consistency reliability for the Child Caregiving and Frightened/Frightening subscales, only the 7-item Maternal Helplessness was used in this study. Higher scores reflect the mother's disagreement with statements suggesting that she lacks knowledge of her child's needs or feels ineffective in satisfying those needs. A sample item is, "When I am with my child, I often feel out of control." Previous studies have demonstrated the reliability and validity of this questionnaire. For example, the Maternal Helplessness scale has been associated with parent's helplessness ratings in the Caregiving Interview and with child behavior problems (Solomon & George, 2011), and CHQ total scores have been associated with parent-child dyadic conflict resolution (i.e. Revealed Differences ratings; Obsuth et al., 2014). Internal consistency reliability is reported to be .85 for the Maternal Helplessness subscale (Solomon & George, 2011). Cronbach's alpha for our sample was .89.

The children were administered the *Wechsler Intelligence Test for Children—Fourth Edition Vocabulary* subtest (PsychCorp, 2003) to assess verbal expressive skills, which could prove important in child interviews.

Additionally, a 12-item social desirability scale (Anan & Barnett, 1999) was administered. A sample item is "Sometimes I don't listen to my parents." Cronbach's alpha for the sample of 7-year

Table 2. Correspondence of age 4 and 12-year-old attachment strategy distribution, by instrument.

PAA	SAA		Revealed differences		
	Low risk	High risk	Low risk	High risk	Total
Low risk	8	1	7	2	9
High risk	1	11	4	8	12
Total	9	12	11	10	21

olds for whom the measure was developed was .67. For our sample of older children, Cronbach's alpha was .82.

Results

We begin with the associations between the four attachment assessments, followed by attachment and family risk, and conclude with the correlations between assessments of children's attachment and parenting measures.

Due to the small sample size and the small number of children employing a C attachment strategy in the SAA, attachment was examined dichotomously (low risk vs high risk). This decision was guided by DMM concepts and resulted in 12 children classified as high risk. These children largely utilized A+ strategies, as can be seen in Table 1. (See Kidwell et al., 2010 for additional PAA findings.)

Neither child gender nor age was related to any age 12 attachment assessment. The SAA and Revealed Difference dyadic ratings were not associated with child Wechsler Intelligence Scale for Children (WISC) IV vocabulary scores, nor with social desirability. Defensiveness on the social desirability scale was marginally related to Security Scale scores ($r_{(21)} = .37, p < .10$), and thus was controlled in analyses.

Hypothesis 1: Attachment assessments. There was a significant relation between children's attachment at age 4 in the PAA and their age 12 SAA strategy ($X^2_{(1)} = 13.63, p < .001$) and Revealed Difference conflict resolution category ($X^2_{(1)} = 4.07, p < .05$; see Table 2). There was excellent agreement between risk status particularly for the PAA and SAA.

The Revealed Differences and SAA were generally consistent with each other in terms of the risk status the measures suggested ($X^2_{(1)} = 4.07, p < .05$). Seven of nine children with low-risk SAA strategies used low-risk (i.e. collaborative or containing) methods of dealing with disagreement in the Revealed Differences Task. Of 12 children, 8 with high-risk SAA strategies also used high-risk (i.e. caregiving, stifled, or entangled) methods in the Revealed Differences Task.

Hypothesis 2: Self-report assessment. The Security Scale questionnaire was related to both the PAA and SAA attachment assessments ($t_{(9)} = -2.65, p < .05$, and $t_{(19)} = -2.53, p < .05$, respectively), in the direction predicted by the DMM, but likely surprising based on the larger attachment literature. Even when defensiveness was statistically controlled, children using higher risk DMM strategies rated their parent as more accepting, sensitive, and available to them, compared to children using lower risk attachment strategies. No association was found for the Security Scale or the Revealed Differences risk category (see Table 3).

Hypothesis 3: Attachment and family risk. Cumulative socioeconomic risk was associated with the SAA and Revealed Differences dyadic ratings, but not with the Security Scale. Families

Table 3. Security Scale scores compared to DMM and Revealed Differences assessments.

	Security scale	
	Low risk	High risk
PAA	48.78 (3.46)	54.48 (5.82)*
SAA	48.89 (3.69)	54.50 (5.81)*
Revealed differences	51.45 (5.09)	52.80 (6.44)

* $p < .05$.**Table 4.** Other variables in association with interview and dyadic attachment assessments.

	SAA		Revealed differences	
	Low risk ($n = 9$)	High risk ($n = 12$)	Low risk ($n = 10$)	High risk ($n = 11$)
Cumulative sociodemographic risk	3.78 (2.49)	7.00* (3.16)	4.27 (2.94)	7.10* (3.07)
Parental childhood trauma	1.67 (2.59)	6.33*** (2.81)	3.18 (2.86)	5.60 (3.95)
Child lifetime stressful events	4.22 (3.56)	7.34+ (4.61)	6.45 (5.03)	5.44 (3.68)
Parental depression average	9.50 (5.98)	17.25+ (17.55)	10.50 (5.46)	17.70 (15.08)
CHQ Maternal Helplessness	30.00 (2.82)	24.00+ (8.93)	30.56 (3.43)	22.78* (8.43)
Child WISC IV Vocabulary	12.56 (2.60)	10.50 (3.15)	11.73 (2.83)	11.00 (3.37)
Child Social Desirability	16.89 (2.89)	18.75 (3.22)	18.45 (3.62)	17.40 (2.63)

*** $p < .001$.** $p < .01$.* $p < .05$.+ $p < .10$.

with greater exposure to socioeconomic stressors were more likely to have children classified as high risk in the SAA ($t_{(19)} = -2.52, p < .05$) and in the Revealed Differences Task ($t_{(19)} = -2.16, p < .05$; see Table 4).

Increased parental exposure to childhood adverse events was associated with greater likelihood of having a child who used high-risk attachment strategies in the SAA ($t_{(17)} = -3.89, p < .001$). Revealed Differences conflict resolution ratings and Security Scale scores were not associated with parental trauma history, although the obtained correlation with the latter measure was in the positive direction (i.e. as parents reported greater trauma, their children reported greater security).

Child lifetime exposure to stressful events was marginally associated with children's SAA classifications ($t_{(18)} = -1.72, p < .10$). There was no relationship between child stress exposure and either Revealed Difference ratings or Security Scale scores.

Parent's average depression scores on the CES-D across the two time points were marginally associated with the SAA, such that children using high-risk strategies tended to have parents at elevated likelihood of clinical depression symptoms ($t_{(15,98)} = -1.77, p < .10$). Revealed Differences risk status and Security Scale scores were not significantly related to parental depression.

Hypothesis 3: Attachment and parenting perceptions. The SAA had a marginally significant association with the CHQ Maternal Helplessness scale ($t_{(11,17)} = 2.00, p < .10$). The Revealed Difference Task conflict resolution ratings were associated in the expected direction with the

Maternal Helplessness Scale ($t_{(10,59)} = 2.57, p < .05$). Security Scale Scores were not related to the Maternal Helplessness scale.

Discussion

This study compared assessments of attachment in early adolescence derived from the DMM and ABC+D traditions. Overall, the findings are stronger for the construct validity of the SAA. SAA risk status was related to *all* measures of parenting and risk, including perceived parenting effectiveness, demographic risk, and parental trauma history and depression. Children's self-protective strategy, as elicited by the SAA, was associated with six different measures. Ratings of the Revealed Differences Task, which assessed secure base behavior during a dyadic conflict resolution task, were associated with two measures of family risk. This assessment was derived from the ABC+D approach, though our coding system reflected DMM ideas as well.

The SAA was also associated with the two other indicators of attachment at age 12, though with the Security Scale questionnaire, the finding was the opposite of what might be predicted in low-risk samples. It is notable that this finding, predicted *a priori*, is consistent with Bowlby's (1980) concept of defensive exclusion, as well as information processing biases in individuals using high-risk DMM strategies. This will be discussed further below.

Stability in DMM risk status was also demonstrated across an 8-year time span, from the PAA to the SAA. These are very different assessments, with the PAA being an enactment of the child's strategy and the SAA eliciting a linguistic representation of the strategy (see Crittenden et al., 2015). The PAA and SAA share not just the underlying theoretical frame but also the importance of looking at discrepancies in how affect is displayed versus experienced. Additionally, both introduce a gradient of threat to elicit the self-protective strategy.

The Revealed Differences Task also introduces threat and the clinically informed ratings scheme worked reasonably well to identify children using high-risk DMM strategies. There was some prediction error, however. Most crucially, four children classified as using a high-risk DMM strategy at ages 4 and 12 were categorized as containing or cooperative on the Revealed Differences Task. Each of these children used an A+ strategy. Even when coders were trained in DMM concepts such as false-positive affect, they sometimes missed these "overlooked" children. Threat was introduced by having to discuss a point of disagreement with their parent, and an A+ strategy often served children very well, hiding the problem even from coders who were looking for too-bright affect and slips in the façade.

The Security Scale self-report measure tended to work poorly when risk level increased, with more endangered children reporting the greatest levels of felt security with their parents. It is important to note that, among the high-risk SAA group, A+ was disproportionately represented (82% A+ or A/C). Compulsive A+ strategies involve cognitive biases and distortions that prioritize cognitive information, while often omitting the importance or influence of affective information. Increasing experiences of risk and danger result in increasing distortions of cognition and affect, whereby the individual omits and even falsifies affect increasingly as the perceived threat becomes more intense. At its highest levels, this process produces delusional idealization of endangering parents (Crittenden, 2008, 2015).

Crittenden's early child protection work has been central to the development of DMM theory, showing that the A+ pattern is strategic in dealing with predictably rejecting, withdrawn, or abusive parents. For example, decreasing rates of child abuse as children grow older may be the result of endangered children becoming better at inhibiting negative affect while relying on temporal contingencies (Crittenden, 1988). Unfortunately, because these children rely on the temporal ordering of events to predict danger; they often blame themselves for what has happened to them.

Our study joins those of others that have supported the utility of the DMM, particularly for high-risk populations. Because of the documented socioeconomic and psychological risk in the Appalachian region of the United States, we chose the DMM as our conceptual framework for understanding attachment and adaptation. The DMM encourages appreciation of the challenges these families face. In spite of the high rates of depression and trauma among our parents, most do not receive mental health treatment. Stigma still exists such that allowing others to see “inside” the family is very threatening. In this regard, our parents are quite admirable. They told us the good, the bad, and the ugly of their families. Unequivocally, parents with difficult pasts expressed hope that their children would have a much easier life, and they were working hard to provide this. However, what is needed is more and better help to children and families; the DMM assessments would be incredibly valuable in this enterprise, not only to identify family needs, but also to frame behavior as an adapted response which can adapt again to generate a better future.

Limitations and future directions

The most central limitation of this study is the small sample size, which may have especially impacted the findings for the dyadic conflict resolution ratings from the Revealed Differences Task. Also, both small sample size and attrition of children using C strategies necessitated dichotomizing attachment into low and high risk. Future studies will be needed to determine the validity of these attachment assessments for children using a C strategy. Notably, the Type A pattern involves obedience to authority. Retaining families with members using Type C strategies may require a different approach from researchers.

Clinical relevance

We think the clinical implications derived from the SAA are substantial; we use a brief case report from our study to illustrate our conclusions.

At age 4, Archie showed an interesting self-protective strategy in the PAA for dealing with his mother’s appearance of warmth that was coupled with both demands for caregiving play and sickly sweet “lover’s talk” and also complete intolerance of his arousal and negative affect. Archie’s PAA was classified as having a sexualized/spousal form of an A3 caregiving strategy that switched to C3 aggression toward his mother when he’d had enough. When she made him feel guilty, he immediately returned to caregiving.

At age 12, Archie’s SAA strategy was very complex. It was classified as showing psychological trauma regarding bullies, ghosts, and “bad people” (in a confused and disorganized form), as well as vicarious trauma regarding his mother’s aggression toward a neighbor, in a combined A/C strategy of compulsive caregiving and compliance (A+) and coerciveness with aspects of aggression, feigned helplessness, revenge, and even sexual seductiveness (C+). He displaced his fears onto non-familial situations, was quite preoccupied by them, and anticipated that bad things would happen. He fantasized about revenge with bullies “lying in a pool of blood” and became irritated when pushed to discuss exactly what had transpired in a physical altercation of his mother that he hadn’t directly observed. Archie became very aroused during the SAA, breathing heavily and scratching his head. Overall, however, he was exceedingly cooperative and highly entertaining.

Archie’s mother had a history of childhood maltreatment, for which she had had limited treatment. She seemed likely to have both posttraumatic stress disorder and depression, but she was very proud of how sweet, helpful, and well behaved Archie was. In fact, she noted fewer behavioral symptoms as he became older. We wonder whether Archie’s A+ strategy became increasingly attuned to her needs and preferences. If so, one must ask how this will serve him beyond

his relationship with his mother. Archie has somatic symptoms and meets criteria for generalized anxiety disorder. He has few friends and reports that he does not know how to make them. He has never come to the attention of professionals. Indeed, he is an overlooked child. Even in our study, this would have occurred if it were not for DMM assessments. He appeared highly collaborative in discussing conflict with his mother in the Revealed Differences Task and on the Security Scale he awarded his mother a perfect score!

Conclusion

Without assessments that enable coders to identify a wide range of distortions of information processing and to recognize their self-protective function, children like Archie will be left to fend for themselves. This might have undesirable consequences for the children, but also, later, for their lovers, partners, and children. We think such outcomes can be prevented with DMM-informed assessment.

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