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Narrative story stems with high risk six year-olds: Differential associations with mother- and teacher-reported psycho-social adjustment

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Children's responses on a Narrative Story Stem Technique (NSST) were coded using scales reflecting essential attachment constructs, specifically, attachment, exploratory, sociability, and caregiving behavioral systems, as originally conceived by Bowlby (1973, 1982) and elaborated upon by his followers (Cassidy, 2008). NSST responses were examined in relation to both mother- and teacher-reported psycho-social adjustment and risk using the MacArthur Health & Behavior Questionnaire (HBQ). Forty-six children participated (average age 6 years 10 months), 19 of whom had high-risk backgrounds, and the rest demographically matched. Findings indicate that NSST scales were associated with behavior on certain HBQ scales, in expected directions. NSST responses appeared to differentiate socially competent children from children with the specific psycho-social risks of externalizing behavior problems and social isolation, according to mother-reports, on the one hand, and peer vulnerability and internalizing problems, according to teacher-reports, on the other. Implications for clinical applications are discussed.

Keywords: attachment; narratives; story stems; high-risk children; psycho-social adjustment

Introduction

Bowlby's attachment theory (1973, 1982) posited that a growing child's accumulated memories of experiences with attachment figures become organized into mental models, "internal working models", the central function of which is to provide the child with a sense of predictability within the caregiving environment. At the psychological level, thus, attachment relationships are "represented" within the child's store of memory. In their seminal paper in the attachment literature, Main, Kaplan, and Cassidy (1985) argued that attachment research had to move into the representational realm to better understand how children and adults organize and apply their internal working models of attachment relationships. In recent years, studies employing representational measures of attachment have provided researchers and clinicians with new methods for the evaluation of young children's

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psycho-social well-being, and produced new understanding of their perceptions of their caregiving relationships (see Bretherton & Oppenheim, 2003). Much evidence has now accumulated that shows that the representations of close relationships that young children express in response to standardized narrative methodologies tend to reflect to a substantial degree real relationship qualities experienced in their daily lives (see review papers by Bettmann & Lundahl, 2007; Page, 2001).

The use of narrative, representational methods in the study of attachment in early childhood can be traced back to projective instruments such as the Thematic Apperception Task (TAT). The TAT had its foundation in the dual, and often competing, fields of psychometrics and projective theory, which derived principally from the psychoanalytic interest in exposure of unconscious motivations (Fleming, 1982). Standardized narrative representational approaches to the study of attachment include the Separation Anxiety Test (Main et al., 1985), which, like the TAT, employs picture cards with ambiguous depictions of facial expressions among child and family figures, and various applications of Narrative Story Stem Techniques (NSST), a generic term taken from Buchsbaum, Toth, Clyman, Cicchetti, and Emde (1992). The NSST is a semi-projective narrative method in which story stems present common problems or conflicts using family figures, and children create their own spontaneous narratives in response. The two principal narrative story stem methods from which this narrative approach to assessment originated are the Attachment Story Completion Task (ASCT; Bretherton, Ridgeway, & Cassidy, 1990) and the MacArthur Story Stem Battery (which includes the five stories of the ASCT) (MSSB; Bretherton, Oppenheim, Buchsbaum, Emde, and the MacArthur Narrative Group, 1990). Since then, several other approaches to this basic method have been developed, with variations including different story stems, figures (e.g., Hodges, Steele, Hillman, Henderson, & Kaniuk, 2003), degree of emotional engagement of the method of story delivery (Green, Stanley, Smith, & Goldwyn, 2000), and for various ages of participants (Granot & Mayseless, 2001).

Findings from narrative story stem research have demonstrated associations with various aspects of children's social experience. Children's NSST responses have been found to be associated with the quality of their attachments to mothers, including Strange Situation assessments of attachment in infancy (Bretherton, Ridgeway, & Cassidy, 1990; Cassidy, 1988) as well as in early school-age (Moss, Bureau, Béliveau, & Lépine, 2009). Narrative story stems have also been studied extensively in relation to social behavior in school and home settings, particularly externalization and internalization, as reported by teachers and/or mothers (Hubbs-Tait et al., 1996; Oppenheim, Emde, & Warren, 1997; Page & Bretherton, 2001; Warren, Oppenheim, & Emde, 1996). Warren, Emde, and Sroufe (2000) used narrative story stems to predict anxiety symptoms longitudinally. Several studies have found associations between children's NSST narratives and qualities of mothers' experiences, including depression and psychological distress (Oppenheim et al., 1997; Schechter et al., 2007), attachment organization in adulthood of biological mothers (Gloger-Tippelt, Gomille, Koenig, & Vetter, 2002) and adoptive mothers (Steele, Hodges, Kaniuk, Hillman, & Henderson, 2003), and observations of the quality of mothers' interactions with their children in the home (Dubois-Comtois & Moss, 2008; Goodman, Aber, Berlin, & Brooks-Gunn, 1998). Maternal depression assessed at child age of 20 months has been found to predict children's NSST responses longitudinally over two years later (Toth, Rogosch, Sturge-Apple, & Cicchetti, 2009). Toth et al. (2002) employed an NSST protocol as a dependent variable in

a longitudinal evaluation of a parenting intervention, discovering predicted positive changes in NSST enactments of family relationship qualities that coincided with positive changes in behavior made by parents in response to the intervention.

NSST protocols have been used in several studies of maltreated children, notably by Toth, Cicchetti, Macfie and colleagues (Macfie, Toth, Rogosch, Robinson, Emde, & Cicchetti, 1999; Toth, Cicchetti, Macfie, Maughan, & Vanmeenen, 2000; Toth, Cicchetti, Macfie, Rogosch, & Maughan, 2000). Among the many findings produced by these studies, the narratives created by maltreated children were distinguished from non-maltreated children by characteristics such as more conflict, fewer “moral-affiliative” themes, fewer positive self-representations, fewer parental responses to relieve distress, more negative representations of parents, and more role-reversal.

Recently, considerable attention has been brought to the question of the utility of narrative story stem methods for clinical assessment and intervention. A 2007 issue (vol. 9/3) of *Attachment & Human Development* was a response to this interest, where several original contributions documented the utility of NSST protocols for assessments of social problems indicative of adjustment problems and potential mental health risk, including mood disorders (Belden, Sullivan, & Luby, 2007; Beresford, Robinson, Holmberg, & Ross, 2007) and conduct disorders (Hill, Fonagy, Lancaster, & Broyden, 2007).

There is no single approach taken to coding the various NSST protocols, though most approaches record aspects of enacted narrative content such as caregiving and conflict, and processes such as engagement qualities. The most widely used coding system, the MacArthur Narrative Coding System (Robinson, Mantz-Simmons, Macfie, Kelsay, Holmberg, & the MacArthur Narrative Working Group, 2004), utilizes positive and negative dimensions of parental and child representations, scoring occurrence/non-occurrence once per each story of the protocol. Exploration and expansion of coding approaches is a vital area of research because much remains to be learned about the nature of information that children communicate through their narratives. Recent innovative examples are provided by Macfie and colleagues who have focused on dissociative processes (Macfie, Cicchetti, & Toth, 2001), and Hill and colleagues who have focused on “intentionality” or the child’s awareness of, and responsiveness to, the emotional and motivational experience of a relationship partner (Hill et al., 2007).

Research with the NSST over the past 20 plus years has yielded a surprising amount of new knowledge about how children internally represent their relational experience and are able to communicate this. We have learned that children’s representations of their relational worlds are part of a complex web of perception, experience in caregiving environments, behavior, emotional security, and psycho-social adjustment. Despite a large and growing literature, much more remains to be learned about these processes. Among other important things, NSST research will be particularly advanced by the inclusion of greater diversity of experience in the backgrounds of children and families, diversity of measures of psycho-social correlates, and greater innovation in coding approaches.

Use of the NSST in the current study

The present study seeks to address several of these needs through the use of a diverse sample with respect to race and childhood risk, utilization of mother and teacher reports of children’s psycho-social functioning, inclusion of previously unstudied

dimensions of social functioning in NSST research, and the use of a new coding system. Most of the research to date with the NSST has been with White, non-clinical samples, although, especially in recent years, there are several notable exceptions (e.g., Goodman et al., 1998). The current study was part of a larger follow-up study of adaptation among a sample of middle childhood-aged children who had been severely maltreated in infancy or early childhood, and consequently were placed in the custody of the State of Louisiana, and a demographically matched comparison group. The sub-sample of children who completed the NSST used in this study was assessed to better understand how characteristics of narrative representations created by the children might provide new information about their psychosocial adjustments and risks. It is important to note that this is not, however, a comparative study of maltreated vs. non-maltreated children. The maltreatment in the lives of these children occurred as much as six or seven years prior to our observations, and many of those children had received some form of mental health treatment during that time. The scientific benefit of this mixed sample of previously maltreated and non-maltreated children lies in the variability of risk-related histories they represent. Such samples are needed to advance the study of linkages between attachment processes and mental health risks, which are more prevalent among children exposed to early adversity (Deklyen & Greenberg, 2008).

This study also contributes to the NSST literature by relating narrative qualities to both mother- and teacher-reported indices of children's psycho-social functioning. Social functioning (social competence) is an important area of NSST research for several reasons. First, the link between relational representations (as measured with the NSST) and social behavior is theoretically relevant. Attachment and cognitive theories posit an intimate connection between social behavior and the organized memories and perceptions of important relational history. The study of social functioning in relation to the NSST is also important because of the significance of early behavior, especially with peers, to life-long adjustment and well-being (Zeanah & Zeanah, 2009).

NSST protocols have been studied before in relation to both parent and teacher-reported social behavior (Warren et al., 1996), but such studies are few. Analyses such as these, where more than one data source is used, can clarify and expand our knowledge of differential findings involving NSST protocols and indices of social behavior.

This study also contributes to the recent interest in clinical applications of the NSST by using an instrument, the MacArthur Health & Behavior Questionnaire (HBQ; Ablow et al., 1999), which was specifically designed for psycho-social risk assessment. In addition to dimensions of internalizing and externalizing behavior problems, the HBQ scales used in this study assessed asocial behavior, peer acceptance, and bully victimization. Bully victimization has recently become a focus of attention in studies of developmental risk in children, but never previously studied in relation to children's representational assessments. This is an important focus for research because bully victimization is associated with multiple risks for psychosocial maladjustment in children, particularly depression, psychosomatic symptoms, and social rejection (Fekkes, Pijpers, & Verloove-Vanhorick, 2004; Hawker & Boulton, 2000; Schäfer, Korn, Brodbeck, Wolke, & Schulz, 2005), and there is evidence, where peer hierarchies are strongly defined, that the bully victim role may tend to be stable over time (Schäfer et al., 2005).

The new coding approach taken in the present study, described below, utilizes scales based on Bowlby's original conceptualization of behavioral systems (1973,

1982), and elaborated upon by his followers (Cassidy, 2008), specifically attachment, exploratory, sociable, and caregiving systems. As Bowlby conceived of them, behavioral systems are predictable sequences of behavior, initiated by an individual's instinctive response to personal or environmental conditions, and directed to a specific social goal. In optimal circumstances in the developing child's life, attachment, exploratory, and caregiving systems operate in more or less close synchrony: attachment and exploratory behavior are activated and deactivated as the child seeks either to attain proximity to a caregiver or autonomous exploration, respectively; the caregiving system is engaged according to the child's specific set of needs that correspond to the activation of these systems (see Marvin, Cooper, Hoffman, & Powell, 2002, for a description and clinical application of this idea). The sociable behavioral system is theorized to share elements of attachment and exploration in developing children (Cassidy, 2008). In this study, exploratory and sociability scales are combined into one because of the high correlation found for them. (See Appendix 2 for descriptions of narrative representations included for each of the NSST scales.)

Several goals are reflected in this approach: to explicitly link narrative coding to major motivational constructs of attachment theory; to discover a parsimonious balance of a limited number of narrative scales that reflect broad patterns of relational transactions; and to use coding constructs that are potentially relevant to both research and clinical assessment purposes.

Coding of caregiver characteristics is perhaps the most commonly found approach in NSST research, with most of these focused on positive (e.g., nurturing, benevolent authority) and negative (e.g., rejection, aggression) dimensions (Page & Bretherton, 2001; Robinson et al., 2004). Coding of child characteristics tends to reflect behavior such as acting to relieve distress, but not a more global assessment of exploratory and sociable peer behavior, as used in the present study. Coding representational attachment behavior as an individual construct is rare (Hodges et al., 2003; Page & Bretherton, 2001; Splaun, Reiner, Steele, Steele, & Murphy, 2010). This study uses a parsimonious approach to coding these constructs by representing them with three seven-point scales.

Research questions/hypotheses

Our major questions were:

- To what extent are characteristics of the narratives children create about family and peer relationships with a narrative story stem protocol, specifically, representations of attachment, exploration/sociability, and caregiving, associated with their psycho-social adjustments as reported by parents (biological and foster mothers) and teachers, as theory and past research would predict?
- In what ways are parent and teacher assessments of children's psycho-social adjustments differentially associated with children's family narratives?
- It was expected, generally, that positive narrative representations of attachment, exploration/sociability, and caregiving would be associated with positive psycho-social adjustment reported by mothers and teachers, and the reverse, that problematic narrative characteristics along these three dimensions would be associated with psycho-social adjustment problems.

Methods

Sample

Forty-six children participated (27 boys/19 girls), of which 24 were African American, 16 Caucasian, and six bi-racial/other. The mean age of the children was six years, 10 months (82 months; range = 68–116 months). Median annual household income of the sample was approximately \$35,000 (US). Nineteen of the children had maltreatment histories, 27 did not. The previously maltreated children were all initially referred in infancy or early childhood (most were under the age of three) to a university-sponsored clinic contracted by the local child welfare office for assessment, short-term treatment, and recommendations to the courts regarding placement. Seventeen of these children had been adopted by non-relatives; two of them were living in kin placements. The comparison group was composed of children and families demographically matched to the previously maltreated group, recruited by advertisement through local schools in the same locality. All names were submitted to the state Child Protective Services who verified that none of the comparison subjects had been validated as having experienced maltreatment. All children, except for two, had been in the custody of caregivers a minimum of one year at the time of this assessment. The two exceptions had been moved to relatives of their former placements approximately six months prior to this assessment.

In the whole sample, slightly more than half of the families consisted of two parents and approximately one quarter of the families were headed by single parents. Teacher-report data were available for only 38 children. The eight children who were excluded from teacher-report analyses did not differ from the rest of the sample on major demographic indices.

Measures

Narrative Story Stem Technique (NSST)

The NSST protocol used in this study presented 10 brief story stems, each depicting a familiar, mildly stressful situation (e.g., the parents depart for a three-day trip, then return), enacted with family figures and props. All but one of these story stems have been used in past research, mostly with the Attachment Story Completion Task (ASCT) and/or the MacArthur Story Stem Battery (MSSB). The one new story (“Ball Play”) is a modification of a story in Warren, Emde, and Sroufe (2000), and was designed to assess perceptions of ambiguous motivations in peer relationships. (See Appendix 1 for a list of the story stems used in this study.) The family figures used were small toy bears, dressed in simple clothing: mother, father, grandmother, older sibling, younger sibling (the siblings presented were the same gender as the subject child), and two friends of the children. In a deviation from other NSST protocols, both parent figures and the grandmother were present for each story stem, to reflect the family structure familiar to many of the children in the study. (The first author can provide more detail about the protocol set-up upon request.) Following the presentation of the story stems, children are asked to show and tell what happens next. A standard set of prompts is used by the examiner to encourage the child to focus on the central story theme.

Coding. Narratives were coded in two steps. First, story themes consisting of dyadic interactions (e.g., providing care, conflict, and role-reversal) or individual attributes (e.g., demonstration of children's physical abilities) (16 themes in all) were identified for each story as often as these occurred, noting the specific figures involved (Page, 2007). Coders write detailed story transcripts as they code them, to locate codes in specific story contexts. In the second step, on the basis of the identified story themes, three seven-point scales (Attachment, Exploration/Sociability, and Caregiving) were rated to reflect content across all stories. Each subject is given one rating for each of these scales. These scales were the variables used in the data analyses. (See Appendix 2 for brief descriptions of NSST scales.)

The rating process for the three seven-point scales involves a judgment by the rater of the larger, overall sense of the observed quality of the scale construct, but not a formula for a literal computation of the step one themes. This approach is similar to, and was inspired by, the coding approach taken by Oppenheim and Koren-Karie (2002) to their coding of the attachment-based Insightfulness Assessment. The three NSST scales were constructed to reflect Bowlby's original conceptualization of major behavioral systems operating in the attachment relationship: children's attachment behavior toward caregivers, children's autonomous exploration, children's sociability/affiliative behavior with peers, and parental caregiving.

The narrative scales cannot, of course, be considered independent of each other and, thus, were expected to be intercorrelated, due to the high theoretical inter-relatedness of these constructs, overlapping of coding procedures, and the fact that they are derived from the same data source. The first author coded the NSST unaware of any previous data or children's histories. Weighted kappa coefficients were obtained independently with another coder on 25% of the sample (randomly selected), counting agreement as being within one scale point. Kappa values were .6 (the conventional minimum) for the Exploration/Sociability scale, .8 for the Caregiving, and .9 for Attachment.

Psycho-social functioning

The MacArthur Health & Behavior Questionnaire (HBQ) (Ablow et al., 1999; Lemery-Chalfant et al., 2007; Luby et al., 2002) is a survey measure of adaptation and well-being, concerning children's physical health, mental health, and social behavior, normed for ages four–eight years. In this study, the HBQ provides an index of psycho-social functioning and risk.

The HBQ has parent- and teacher-report forms. The mother-report form consists of 172 items that record the mother's perceptions of the child's health and behavior. The teacher-report form consists of 145 items that record the teacher's perceptions of the child in the school context, including behavior, school performance, relationships with peers, and quality of interaction with the teacher. Mother- and teacher-report instruments produce 27 and 22 scales and sub-scales, respectively. (Several scales are composed of some of these subscales and, thus, reflect highly overlapping constructs, e.g., see descriptions for the externalizing and internalizing scales, below.)

The HBQ has been shown to have discriminant validity in predictions of clinically referred children, with sensitivity to internalizing and externalizing disorders (Ablow et al., 1999; Luby et al., 2002) and criterion validity in its ability to predict diagnostic categories (Lemery-Chalfant et al., 2007). Strong internal consistencies and test-retest reliability have been reported (Ablow et al., 1999).

The following four HBQ subscales were used in these analyses, with mother- and teacher-reports for each: children's Internalizing behavior (composed of the three sub-scales over-anxious, separation anxiety, and depression), Externalizing behavior (composed of the four subscales oppositional-defiant, overt hostility, conduct problems, and relational aggression), Asocial behavior (composed of items indicating social withdrawal and solitary behavior), and a combined scale for Peer Acceptance and Bully Victimization (each of which was an individual scale but combined because of their high inter-correlation [$-.68$], higher values reflect higher peer acceptance, lower values reflect greater likelihood for bully victimization or peer rejection). Alpha coefficients for HBQ scales ranged from .81 for the mother-reported Internalizing to .95 for the teacher-reported Asocial scale.

The HBQ internalizing and externalizing scales were chosen on the basis of extensive prior research with the NSST. Peer relationships, as noted above, have also been studied previously with the NSST, although asocial and bully victimization dimensions have not. These two scales thus provided an opportunity for new exploration of social correlates. Other HBQ scales were not utilized because they concern mental or physical health issues or dimensions of social functioning outside the primary focus of this study (e.g., ADHD symptoms, medical conditions, adult-led recreational activities, academic competence). Two other scales which did address social adjustment issues potentially relevant to this study, the prosocial behavior and social inhibition scales, were correlated with the four selected scales, though they had no associations with NSST scales individually.

Procedures

University Internal Review Board approval was obtained for the study. Data were gathered over two home visits, each of which took approximately 90 minutes. Consent was obtained from parents and children at the first visit. The NSST was administered and videotaped in the first home visit by a research associate trained in the use of this NSST protocol by the first author. The Peabody Picture Vocabulary Test (PPVT; Dunn & Dunn, 1981) was administered to the child at the second visit. It is included as a control variable in this study because of its potential relevance to narrative abilities and to social functioning measures.

Mothers completed the HBQ and the demographic interview in the home with the assistance of a research associate who read each question and response option to control for reading capacity. Teachers completed the HBQ using the directions supplied with the instrument and generally returned the forms by mail. Mothers were paid \$100 in gift certificates for completion of both home visits, and teachers were paid \$20 in gift certificates for completion of the HBQ.

Data analysis

Hierarchical multiple regressions were used to examine relationships between the three NSST scales (entered as independent variables) and the eight HBQ scales (dependent variables). Control variables were identified on the basis of a small number of bi-variate associations ($p < .1$) with dependent measures. These were: child age, household income, total number of people living in the home, maltreatment history, and scores on the PPVT.

The effects of race on dependent measures were entirely accounted for by the effects of household income. Gender of child, which has been an important correlate in other NSST studies (Page & Bretherton, 2001; von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000) was not significantly related to dependent or independent variables. Length of time with caregiver was highly correlated with children's ages; separate analyses with this variable indicated no effects on results. Data for age, household income, and number of people in the home were missing for four subjects; these values were assigned using the median values for the sample.

Control variables were used selectively due to the small sample size. They were entered as independent variables in the equations where they contributed to the variance of dependent variables. This resulted in using child age and family income for analyses with the mother-reported Externalizing behavior (younger children and low income were associated with Externalizing); age, maltreatment history, and PPVT scores were included for analyses with Asocial behavior (younger children, previous maltreatment, and lower PPVT scores were associated with higher Asocial scores); and age and number of people in the home were included for analyses with mother-reported internalizing behavior (younger children and more people living in the home were associated with higher Internalizing scores). PPVT score was used as a control variable for the teacher-report measures.

Square-root data transformations were performed to improve normality for the Attachment narrative variable, two mother-reported dependent measures (Internalizing and Externalizing behavior), as well as family income. Log transformation was performed for child age.

Results

Univariate and bi-variate findings

Means and standard deviations for the NSST and HBQ scales are presented in Table 1. Zero-order correlations among the HBQ scales are presented in Table 2.

As expected, NSST variables were intercorrelated (.32 [$p < .05$] for Attachment-Exploration/Sociability, .54 [$p < .001$] for Attachment-Caregiving, and .66 [$p < .001$] for Exploration/Sociability-Caregiving).

Table 1. Means and standard deviations (with transformed values) for NSST variables ($n = 46$), mother ($n = 46$), and teacher ($n = 38$) report HBQ scales.

	<i>Mean</i>	<i>Std. Deviation</i>
NSST-Attachment	5.57 (1.49)	1.44 (.44)
NSST-Caregiving	5.04	1.71
NSST-Exploration/Sociability	5.52	1.23
HBQ-M-Internalizing	1.18 (1.04)	.67 (.32)
HBQ-M-Externalizing	1.81 (1.24)	1.30 (.54)
HBQ-M- Peer Acceptance/Bully Victim	6.07	1.22
HBQ-M-Asocial	.35	.34
HBQ-T-Internalizing	.80	.68
HBQ-T-Externalizing	1.13 (.85)	1.29 (.64)
HBQ-T-Peer Acceptance/ Bully Victim	6.39	1.48
HBQ-T-Asocial	.36 (.38)	.56 (.48)

Table 2. Zero-order correlations among HBQ variables.

	Mother Internal.	Mother External.	Mother Bully Victim/ Peer Accept.	Mother Asocial	Teacher Internal.	Teacher External.	Teacher Bully Victim/ Peer Accept.	Teacher Asocial
Mother Internal.								
Mother External.								
Mother Peer Accept./ Bully Victim		-.42** (<i>n</i> = 46)						
Mother Asocial	.28 + (<i>n</i> = 46)	.50*** (<i>n</i> = 46)						
Teacher Internal.								
Teacher External.		.33* (<i>n</i> = 37) ¹			-.30 + (<i>n</i> = 37)			
Teacher Peer Accept./ Bully Victim				-.29 + (<i>n</i> = 38)	-.54*** (<i>n</i> = 38)	-.44** (<i>n</i> = 37)		
Teacher Asocial					.70*** (<i>n</i> = 38)	-.36* (<i>n</i> = 37)	-.50** (<i>n</i> = 38)	

¹Data were missing for one child on the Externalizing sub-scale

+*p* < .1; **p* ≤ .05; ***p* ≤ .01; ****p* < .001.

Among the mother-reported HBQ measures, Peer Acceptance/Bully Victim was negatively associated with Externalizing, Asocial was correlated with Externalizing and marginally correlated with Internalizing. There was no relationship found between Internalizing and Externalizing. Among the teacher-reported measures, moderate to high correlations were found among the four variables. Correlations across mother- and teacher-reported measures were found for one variable only, Externalizing, and at the .1 probability level for mother-reported Asocial behavior and the teacher-reported Peer Acceptance/Bully Victim.

Multivariate findings

Results for the multivariate analyses with mother-report HBQ scores are presented in Table 3.

NSST Exploration/Sociability was negatively associated with mothers' reports of their children's Asocial (withdrawn and isolated) behavior. NSST Caregiving, Exploration/Sociability, and, marginally, Attachment were negatively associated with mother-reported Externalizing.

Approximately 18 to 32% of the variance associated with dependent measure scores was accounted for by the narrative and control variables where a significant narrative variable was found. Effect sizes for the tests of HBQ measures on the narrative variables were mostly of the low-medium size, ranging from a low of .07 (Cohen's f^2) for the regression of mother-reported Asocial on NSST Exploration/Sociability, to .16 for the regression of mother-reported Externalizing on NSST Caregiving.

Results for the multivariate analyses with teacher-report HBQ scores are presented in Table 4.

NSST Caregiving and Exploration/Sociability were associated with teacher-reported Peer Acceptance/Bully Victim. NSST Attachment was associated with

Table 3. Results of hierarchical regressions of mother-reported HBQ scales on NSST scales.

<i>NSST Variable</i>	<i>Mother HBQ Scale</i>	β (<i>t value</i>)	<i>Adj R²</i> <i>for model</i>	<i>ES(f^2) for</i> <i>NSST variable</i>
Attachment	Internalizing	ns		
	Externalizing	-.28 ($t = 1.95^+$)	.18**	.07
	Bully Victim/ Peer Acceptance	ns		
	Asocial	ns		
Caregiving	Internalizing	ns		
	Externalizing	-.37 ($t = 2.79^{**}$)	.25**	.16
	Bully Victim/ Peer Acceptance	ns		
	Asocial	ns		
Exploration/ Sociability	Internalizing	ns		
	Externalizing	-.32 ($t = 2.39^*$)	.22**	.11
	Bully Victim/ Peer Acceptance	ns		
	Asocial	-.27 ($t = 1.99^*$)	.32**	.07

⁺ $p < .1$; * $p \leq .05$; ** $p \leq .01$.

Table 4. Results of hierarchical regressions of teacher-reported HBQ scales on NSST scales.

<i>NSST Variable</i>	<i>Teacher HBQ Scale</i>	β (<i>t value</i>)	<i>Adj R² for model</i>	<i>ES(<i>f</i>²) for NSST variable</i>
Attachment	Internalizing	-.42 (<i>t</i> = 2.99**)	.29**	.22
	Externalizing	ns		
	Bully Victim/Peer Acceptance	ns		
	Asocial	ns		
Caregiving	Internalizing	ns	.14*	.11
	Externalizing	ns		
	Peer Acceptance/Bully Victim	.35 (<i>t</i> = 2.24*)		
	Asocial	ns		
Exploration/Sociability	Internalizing	ns	.12*	.10
	Externalizing	ns		
	Peer Acceptance/Bully Victim	.36 (<i>t</i> = 2.10*)		
	Asocial	ns		

p* ≤ .05; *p* ≤ .01.

teacher-reported Internalizing. The full equations accounted for 12–29% of the variance associated with these dependent measures. Effect sizes for these analyses were in the medium range, $f^2 = .10$ –.22, with the largest of these for the regression of teacher-reported Internalizing on NSST Attachment.

Qualitative data

To illustrate major differences between children identified as socially accepted and socially unaccepted (as indicated on teacher ratings on the Peer Acceptance/Bully Victim sub-scale), verbatim excerpts from the narratives of two representative children are presented. Both children are approximately the same age and both had maltreatment histories as infants. One child (referred to below as Child #1), an African American female, represents the socially accepted group. Her teacher rated her with the highest rating on the Peer Acceptance/Bully Victim sub-scale. Her three narrative scales received the highest rating (7).

The second child (referred to below as Child #2), a Caucasian female, was selected to represent the group of children identified as socially unaccepted. She was rated by her teacher as the very lowest on Peer Acceptance/Bully Victim. Her mother rated her with the highest score on the Internalizing scale, and at the 87th percentile on the Asocial scale. Her narrative Caregiving scale was rated very low (2); Exploration/Sociability and Attachment scales were rated a moderate 5. As noted above for the group data, narrative Caregiving was associated with teachers' ratings of Peer Acceptance/Bully Victim, as well as mothers' ratings of Externalizing behavior.

For comparative purposes, the verbatim responses of both children to the Monster story, the third in the protocol are presented. This story stem presents the five family figures (mother, father, grandmother, and two siblings) and a bed: The mother says to the little child, "It's time to go to bed", and the child says, "Ok,

mom, I'm going". The little child goes into her room and says, "Oh no! There's a monster in my room! There's a monster in my room!" The normative expected response for this story is for the child to enact attachment behavior toward a protective family figure, typically the mother, and for someone in the family to come and reassure and/or comfort the child.

Child #1

[The little sister calls to mother]: "*Mom! Mom! There's something scary in my room!*" [Moves the mother to the bed] Then the mom says, "*You go to bed, it's only just the cover*". Then the baby bear goes to bed. Then mom says, "*Good night*". [kissing sound] Then she reads her a story. Then Tasha goes to sleep. Then mom goes back. Then here comes dad. [kissing sound] "*Good night*". Then here comes big sister. "*Good night, baby sister*". [kissing sound] And [moves the grandmother to the bed] "*Good night, Grandma*". [kissing sound] [Child #1 arranges all figures at the side of the table] And that's it.

Child #2

Child #2 (giggles): I don't know ... She looks under there [bedcover] and there was a frog. Then she went downstairs. "*Mommy!*" [little sister calls] I mean, they were all sleeping, except for her [points to the older sister]; she was doing her homework.

[Child #2 interrupts her narrative to try to tie the little sister's dress – 25 second pause] I just want to tie her, can I? [is unable to tie the dress, finally hands to Examiner for help]

[Little sister goes to older sister] She thought it was a frog but it was a spider ... actually a roach, no, a baby, tiny, tiny, tiny one, about that little. [gestures with pinched fingers]

[The little sister says to the older sister, whiningly] "*Keisha, there's a little, there's a frog in my bed*". "*A frog in the bed?*" [moves both child figures to the bedside] She [older sister] grabbed it, and put it outside [kissing sound] and kissed it. [giggles]

[Child #2 waves the bedcover playfully] "*Whooo*". [Puts little sister in the bed] They both sleep together. No [removes the little sister] she's watching TV. She [picks up older sister] was taking a bath.

[Older sister is placed in the bed, tells the little sister] "*Turn off the TV, it's time for bed*". [places little sister in the bed] 'Cause, it was six o'clock. And she was worried that there was another frog in her bed, but there wasn't'.

She goes get some milk. "*Want to go get some milk?*" [moves both to the side, giggles, drinking noises] She drunk the whole ... bottle. She [little sister] peed on her. "*Hey, I'm telling*. [older sister calls the mom] *Mom! Tasha peed on me*". "*Tasha!*" [The mother gives the little sister a mild scolding. Child #2 moves the little sister to the mother, appears to kiss her.] [Mother, gently scolding again] "*Tasha!*"

She [refers to little sister] is wiping herself. "*Mama!*" "*What did she do?*" "*She peed on her*" [picks up the father figure] Daddy ...

[Child #2 interrupts to ask the Examiner] What does the grandma call him [refers to the father]? [The Grandma tells father] "*Son, your daughter peed on me, too*". "*Come here*". He's going to give her a whipping (this is not enacted). [Grandmother says to the older sister] "*You go to sleep now*. [kisses her] *No more milk*".

She [little sister] drank the whole pack of milk. But she [older sister] only took one milk. She drunk a whole milk. She [older sister] took the whole cover. [laying older sister in the bed]

[Child #2 puts the father in bed with older sister, giggles, and lays the little sister under the cover, away from the bed.] [The older sister calls] "*Tasha, I'm cold*". [Child #2 puts the father under the bed, giggles, and puts the older sister in the bed] [Older sister says to father] "*Get out of my bed please, this is my room*". [Father says] "*I'm sleeping under the bed*".

[The mother asks] "*Dad, where is dad?*" [Sister says] "*He's under the bed*". [Child #2 puts the mom under the bed with father, puts the little sister in the bed with the older sister]

Examiner: Is that the end?

[Child #2 balances the bed on top of all four, mother, father, little sister, grandmother, with older sister in the bed]

Examiner: I want to hear your next story.

Discussion and conclusions

Over 20 years of research with NSST protocols has produced a substantial literature showing, in general, that various representations created by children of individuals within caregiving environments are reliably associated with characteristics of their social and psychological experience. Much remains to be learned, however, about linkages between precise elements of children's narratives and life experiences associated with them, particularly adverse experiences such as maltreatment, loss, and other forms of severe instability. This study contributes to this literature by using a new coding system for the narratives, examining this in relation to a measure of children's psycho-social adaptation and risk not previously used in NSST research, the MacArthur Health Behavior Questionnaire (HBQ).

The narrative scales, which were inspired by Bowlby's original conceptualization of attachment-related behavioral systems, were differentially associated with the four selected HBQ scales depending on reporter, mother or teacher. Low levels of agreement across informants are common in the social sciences (Kraemer, Measelle, Ablow, Essex, Boyce, & Kupfer, 2003). Perceptions of children's social skills are embedded in social contexts that include the observer's relational history with the child, including first-hand knowledge and biases. It is also common for children to behave differently in different social contexts (Pepler & Craig, 1998). The differential findings with respect to the mother and teacher-reported indices of social functioning suggest that mothers and teachers have relatively more knowledge concerning certain dimensions of social behavior.

Children reported as socially withdrawn by their mothers tended to be rated lower on narrative representations of autonomous behavior involving exploration, mastery, and/or positive peer social behavior, indicating consistency across these two measurement dimensions in the assessment of social engagement skills. The quality of functioning represented by the items on the Asocial scale (e.g., "Avoids peers", "Withdraws from peer activities") is conceptually consistent with social behavior that would be expected for a child with an insecure attachment history. It is noteworthy that children with higher Asocial scores tended to also have maltreatment histories, as indicated above.

Mother-reported Externalizing (anti-social behavior) was significantly linked to two of the three narrative variables, with the third marginally significant. The potency of this finding is consistent with extensive findings from the NSST literature indicating particularly strong associations between narrative representations and externalizing behavior problems (Hill et al., 2007).

Teacher-report scales associated with narrative variables focused more specifically on peer acceptance. Children whose teachers rated them high on the Peer Acceptance/Bully Victim scale tended to be rated higher on both the Caregiving and Exploration/Sociability narrative scales. Peer acceptance/bully victimization is likely to have particular value as an indicator of social acceptance, beyond the more commonly studied dimensions of internalizing and externalizing problems, with potentially significant implications for children's long-term psycho-social adjustments (Olweus, 2003). It is likely that teachers had more information about peer acceptance and bully victimization because of their proximity to these circumstances.

Children rated as high on Internalizing (anxious and/or depressed) by their teachers tended to be rated lower on narrative Attachment. This is noteworthy because it suggests that at this age, of roughly early middle-childhood, representational attachment behavior is associated with observations of this dimension of problems in peer relationships in the school setting, but not observations made about social abilities by mothers. This may be an indicator of the growing relevance of attachment for peer relationships, particularly in the dimension of social problems associated with anxiety and/or depression. In the only example of similar findings in previous research, ratings of attachment behavior were found by Page and Bretherton (2001) to be associated with teacher reports of social competence with peers among four-year-old children. Internalizing social adjustment problems have been linked with children's narratives previously in NSST research (Warren et al., 2000), but by employing a broad code for "child negative expectations", not specifically to representational attachment behavior.

The differences in mother- and teacher-reported associations with narrative variables appear to indicate relative patterns of social adjustment among these children. On the one hand, the HBQ variables from mothers' reports found to be associated with NSST scales involve aggressive and asocial behavior problems. HBQ scales from teachers' reports associated with NSST scales involve poor social skills marked primarily by vulnerability and affective disturbance. Whatever the reason for the differential correlates with mother and teacher-report, the three narrative variables were essentially equally relevant, irrespective of reporter, sensitive to both the externalizing/detached and internalizing/rejected dimensions of children's psycho-social problems.

The profiles of the two children's verbatim responses to the Monster story illustrate several important characteristics of narrative constructions relevant to the assessment of psycho-social competence and risk. Child #1's response is the epitome of coherence; the plot is simple and logical, with abundant involvement of loving caretakers, whom the child directly engages, suggesting confidence in her caregivers. Child #2, in stark contrast, presents a confused picture of the caregiving environment, with apparent hesitation and ambivalence about seeking assistance from parents, in essence interrupted attachment behavior. There are story elements that are unexpected, odd, and uncomfortable, such as the appearance of an unpleasant animal (not of one consistent form: frog, spider, or roach) in the child's bed. The story plot arrives at a focus on urination in the bed, with a somewhat

sinister representation of the father in the child's bedroom, the images of which, combined, might suggest sexual abuse (though there was no record of sexual abuse in this child's history). The structure of the story is rambling and unfocused, with occasions where the child seems to interrupt the story to pay attention to some irrelevant detail. These two case examples provide a clear contrast of the underlying dimensions of the narrative variables, particularly attachment, avoidance, caregiving, coherence, and disorganization (refer to Appendix 2 for descriptions of these specific elements in scale coding).

Study limitations and future research

Sample size was of course a limitation for the present study. Limited statistical power is a common problem in NSST research, because sample sizes tend to be small, due to the labor-intensive nature of coding, and the number of variables in more exploratory studies tends to be relatively high. Larger samples enable more sophisticated statistical analyses with more covariates, but are much more costly. Future research must weigh the relative demands of coding, sample recruitment, selection of variables, and the examination of new dimensions of narrative qualities, in relation to as yet understudied sample characteristics such as gender, ethnicity, and family composition.

With respect to dependent measures, exploration of diverse indices of children's social adjustments is an on-going need. The HBQ measure of bully victimization is a good example of this. Only a limited number of the total HBQ scales were used in the present analyses. Future advances in NSST research will bring with it increasing precision and specificity in hypothesized associations with indices of children's psycho-social adjustments.

Clinical importance

The clinical utility of an evidence-based, developmentally focused assessment method for use with young children between the ages of four and 10 is clear. As we and several other researchers have argued elsewhere (Page, Heller, & Boris, 2006; Robinson, 2007), research on clinical uses of NSST protocols should be expanded, especially since few assessment protocols for this age group exist. The evidence presented here, that NSST responses appear to distinguish children with developmentally and clinically relevant social problems from socially competent children, suggests that the use of NSST protocols could make an important contribution to standardized assessments. The specific dimensions of the HBQ found to be associated with this NSST protocol represent a broad range of psycho-social risks: internalizing, externalizing, asocial/peer avoidance, and peer acceptance and victimization. The specific NSST correlates of these dimensions provide more detailed information about these children's adjustments, from their own points of view. From the narratives created by the children, we learn that these indices of risk are related to perceptions of attachment, exploration/sociability, and caregiving. The use of these three attachment-based coding dimensions may provide researchers and clinicians with a useful and parsimonious framework for the interpretation of children's narrative representations. The sensitivity that researchers and clinicians bring to observations of these expressions by young children can provide them with an important opportunity for communication and understanding of their experience.

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Appendix 1. Story stem protocol.

- 1 Spilled Juice: The family is sitting at the table and little Jane/Robert reaches for some juice and spills the pitcher on the floor.¹
- 2 Hurt Knee: The family is taking a walk in the park. Little Jane/Robert tries to climb a “high, high rock” and falls off it, crying, “I’ve hurt my knee, I’m bleeding!”²
- 3 Monster in the Bedroom: It’s bedtime and the mother tells little Jane/Robert to go to bed. S/he goes into the bedroom and cries out, “There’s something scary in my room! There’s something scary in my room!”²
- 4 Departure: The mother and dad are going to go on a trip for three days, and say to the children, “See you in three days, Grandma will stay with you.”²
- 5 Reunion: The mother and dad return from their trip.¹
- 6 Headache: The mother and little Jane/Robert are sitting on the couch watching TV. Mom says she has a headache and she turns the TV off, and asks little Jane/Robert for some quiet. The doorbell rings and it’s little Jane’s/Robert’s friend who asks to come in and watch TV because there is “a really neat show on.”³
- 7 Bathroom Shelf: Part I: The two children are playing in their toybox and the mother comes in and says she has to go to the neighbor’s, and the children are not to touch anything on the bathroom shelf while she is away. The children resume playing in the toybox. Little Jane/Robert cries, “Ouch! I cut my finger, quick, get me a bandaid!” The older sibling replies, “But mom told us not to touch anything on the bathroom shelf.” Jane/Robert replies, “But my finger is bleeding!” Part II: the mother returns.³
- 8 Uncle Fred: The mother sits on the couch, crying because Uncle Fred has died. The younger child stands facing her, some distance away.⁴
- 9 Three’s a Crowd: The older child and friend are playing in the wagon. The younger child asks to join them. The friend replies, “If you let your brother/sister play, I won’t be your friend any more.”³
- 10 Ball Play: Jane/Robert is playing with her/his ball with her/his friend, Sally/Pete. Suddenly, Jane/Robert cries, “Ouch! That hurt my hand!” Experimenter asks: Why do you think Sally/Pete did that?⁵

¹From the Attachment Story Completion Task (Bretherton, Ridgeway, & Cassidy, 1990).

²From the Attachment Story Completion Task (Bretherton, Ridgeway, & Cassidy, 1990), with revisions by Granot and Mayseless (2001).

³From the MacArthur Story Stem Battery (Bretherton, Oppenheim, Buchsbaum, Emde, and the MacArthur Narrative Group, 1990).

⁴From Zahn-Waxler et al. (1994).

⁵From Warren, Emde, and Sroufe (2000).

Appendix 2. Descriptions of narrative scales

Attachment

The Attachment scale captures representations of the cycle of attachment behavior activation. High ratings reflect direct expression of attachment behavior, sensitive response, and indicators of re-regulation following the activation of the attachment system. A rating of 7 corresponds to multiple such representations without any representations of problems, deficiencies, or interruptions of this cycle. Avoidance of the story-telling task/central story conflict, disengagement from the examiner, and insensitive response from a caregiver in narratives are included in low ratings. A rating of 1 corresponds to predominant representations such as these with virtually no representations of the positive dimension of attachment system activation.

Caregiving

The Caregiving scale is conceptualized primarily as child and parent role behavior and boundaries that reflect a child's overall perception of safety and care. Sensitive responsiveness, authoritative guidance and discipline, and child-centered nurture are reflected in the positive dimension. Hostile, role-reversed, deceitful, abdicated, or immature/childishly competitive interactions mark the negative dimension. This scale also encompasses child empathic response/deference to parent, parent-parent, and family representations. Story themes and characteristics that are consistent with Disorganized attachment are also included in the negative dimension because these reflect of qualities of experience in the caregiving environment, indirectly or directly. These include incoherence of the story (i.e., negative, odd, tangential, rambling, incomplete, highly conflicted, contradictory, or unintegrated qualities, including dissociative episodes in the interaction with the examiner), bizarre representations, and very frightening imagery (e.g. great vulnerability to child or parent, intense aggression, especially between parents or of parent to child). A rating of 7 reflects predominant positive caring, authoritative discipline and guidance, and clear, well-regulated parent-child interpersonal boundaries with virtually no representations of the negative dimension. A rating of 1 reflects the opposite, virtually no such positive representations and predominant hostile, frightening, or neglectful/abdicating parenting, and/or role-reversal and incoherence.

Exploration/Sociability

The Exploration scale is represented by the dimensions of mastery, including individual abilities and social relations with peers, vs. vulnerability, incompetence, or aggression of children. High ratings reflect free though affectively regulated exploration and mastery, autonomy characterized by competence, positive depiction of the child figure, and prosocial peer behavior. A rating of 1 reflects predominant vulnerability, fear or incompetence with respect to exploration and/or peer conflict.