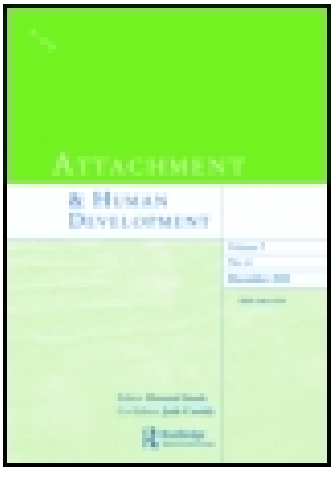

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Preschoolers' narrative representations and childhood adaptation in an ethnoracially diverse sample

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Preschoolers' narrative representations and childhood adaptation in an ethnoracially diverse sample

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This investigation evaluated relations between preschoolers' representational content and coherence in the MacArthur Story Stem Battery (MSSB) at age four as related to child adjustment at age six. A community sample of 250 preschoolers (50% female; M_{age}= 49.05 months, *SD* = 2.9; 46% Hispanic, 18% Black, 11.2% White, 0.4% Asian, and 24.4% multiracial) completed assessments of relational representations using the MSSB at age four and of child adjustment at age six, including a measure of child-reported depressive symptomatology and observer ratings of child aggression during a Bobo doll task and inhibitory control during a delay of gratification task. Regression analyses demonstrated prospective relations between negative mother representation and less inhibitory control, negative child representation and higher aggression, and narrative coherence and more inhibitory control. Interactive analyses revealed relations between negative mother representation and difficulties in inhibitory control among White children and weaker relations among Black children. Prospective relations between narrative coherence and increased inhibitory control were less pronounced for Hispanic children. Findings indicate that preschoolers' narratives can reveal the thematic content and structural coherence of their internalized beliefs and expectations of self and (m)other. Associations between representations and children's adaptation have clear implications for representational processes and interventions in development.

Keywords: adjustment; coherence; MacArthur Story Stem Battery; narratives; ethnicity; representation

Attachment theory holds that children develop inner working models of self and other in the context of the early caregiving milieu (Bowlby, 1969/1982; Bretherton & Munholland, 1999). These relational representations presumably influence children's socioemotional adjustment by guiding both the *content* of their attributions about relationships, and the flexibility or *coherence* with which they apply and regulate these attributions (Main, 1996; Sroufe, Carlson, Levy, & Egeland, 1999). A strong body of evidence shows that early caregiving is associated with preschoolers' representations of self and other (e.g., Sher-Censor & Oppenheim, 2004; Stronach et al., 2011; Toth, Cicchetti, Macfie, & Emde, 1997), but less is known about if and how preschoolers' representations relate to their socioemotional adjustment in later development. Moreover, research has not yet explored prospective relations between preschoolers' representational content versus coherence and later adjustment in childhood.

Efforts to document specific relations between preschoolers' representational processes and subsequent adjustment are important because representations of self and

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other become increasingly structured and organized during this period (Crittenden, 1990). The preschool years constitute an opportune time to promote or restore positive and coherent representational models that are presumed to support children's socioemotional health and future relationships. Thus, this study sought to document prospective relations between the content and coherence of preschoolers' relational representations and their socioemotional adjustment two years later as assessed by child-reported depressive symptoms and observed measures of aggression and inhibitory control. Moreover, exploratory analyses evaluated these patterns across diverse racial/ethnic groups of Hispanic, Black, White, and multiracial preschoolers.

Attachment and preschoolers' narrative representation

The quality of early caregiving is associated with infants' state and behavioral regulation, as expressed in the organization of parent–child attachment (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969/1982). Over time, attachment progresses from the dyadic behavioral organization of parent–infant interaction to cognitive-affective representations that are internal to the child. Although relational representations can be assessed using verbal narrative techniques in adolescence and adulthood (Main, 1996; Steele & Steele, 2005), researchers have relied on play-based narrative methods to evaluate the content and organization of preschoolers' beliefs and expectations about themselves and others (Emde, Wolf, & Oppenheim, 2003).

The MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, Buchsbaum, Emde, & Group, 1990) was developed and validated as a measure of children's representations of self and others (see Bretherton & Oppenheim, 2003 for review). MSSB Studies have demonstrated relations between parenting quality and children's MSSB narratives in both sensitive (Oppenheim, Emde, & Warren, 1997; Sher-Censor & Oppenheim, 2004) and toxic (Macfie et al., 1999; Shields, Ryan, & Cicchetti, 2001; Stronach et al., 2011; Toth, Cicchetti, Macfie, Maughan, & VanMeenen, 2000) milieus. MSSB narratives are comprised of both content (i.e., themes within the narrative) and coherence (i.e., narrative organization). Narrative content can include positive (e.g., warm and responsive caregivers, affectionate child) or negative (e.g., hostile caregiver, non-compliant child) story depictions (Bretherton & Oppenheim, 2003; Oppenheim et al., 1997; Robinson, Mantz-Simmons, & Macfie, 1996). Narrative coherence captures the organization of these depicted themes, particularly regarding the central conflict in the story. In a coherent narrative, the child depicts a logical sequence of events, evidences a clear understanding of the central conflict, and arrives at a realistic resolution (Robinson et al., 1996; Toth et al., 1997). Whereas the *content* of representation captures children's expectations and attributions about relationships that guide behavior, the *coherence* of representation is thought to reflect the information processing rules that shape the formation, storage, and retrieval of these attributions in real time (Bretherton & Munholland, 1999; Hesse, 2008).

Although narrative coherence is related to narrative content (e.g., high levels of negative content undermine the balance that typifies narrative coherence), evidence points to distinct relations between each facet of representation and socioemotional development (Grych, Wachsmuth-Schlaefer, & Klockow, 2002; Sher-Censor & Oppenheim, 2004). Moreover, research with adolescents and adults using verbal measures suggests narrative coherence may be especially important for understanding adjustment because it reflects the storage, retrieval, and processing of narrative content about past relationships (Crittenden, 1990; Hesse, 2008; Phelps, Belsky, & Crnic, 1998). Likewise, although

representations of self and other develop in tandem over the course of early development (Fonagy, Gergely, Jurist, & Target, 2002; Sroufe, 1990), their progressive differentiation may have distinct implications for later adjustment. Thus, the current investigation evaluated the contribution of preschoolers' representations of mother, representations of self, and representational coherence to their socioemotional adjustment two years later.

Preschoolers' narrative representations and socioemotional adjustment

Relative to the large literature examining (and supporting) the validity of play narratives as a tool for measuring preschoolers' representations in the context of early caregiving experiences, fewer studies have examined relations between children's narrative representations and their socioemotional adjustment. Both attachment and social cognitive theories of development posit that children's representational content and organization will influence adaptive functioning across internal (e.g., subjective distress) and external (e.g., behavior) indices because they guide children's social and emotional information processing (Bretherton & Munholland, 1999; Crick & Dodge, 1994).

Cross-sectional studies support concurrent relations of representational *content* and, in fewer studies, coherence with children's socioemotional adjustment. Both positive (e.g., nurturing, affectionate) and negative (e.g., aggressive, ineffectual) representational themes have been associated with fewer or more child behavior problems, particularly externalizing behaviors, respectively (Beresford, Robinson, Holmberg, & Ross, 2007; Oppenheim et al., 1997). Likewise, Wan and Green (2010) found that children with severe behavior problems evidenced more negative content in their play narratives than children without clinically significant behavior problems. Studies examining both content and coherence replicate these findings, with additional evidence suggesting that narrative coherence is related to fewer concurrent externalizing problems (Futh, O'Connor, Matias, Green, & Scott, 2008; Laible, Carlo, Torquati, & Ontai, 2004). In a cross-sectional study of maltreated children, Shields and colleagues (2001) found that children's negative representational content and poor coherence were associated with emotion regulation deficits that, in turn, mediated obtained relations between maltreatment and peer rejection.

Relative to cross-sectional studies, far fewer investigations have examined relations between children's narrative representations and adjustment across time. In a largely Caucasian sample, Stadelmann and colleagues (2007) found that negative parental representations at age five predicted an increase in conduct problems at age six, whereas positive parental representations at age five predicted an increase in prosocial behavior. In another study, Warren and colleagues (2000) found that negative depictions of parents as harsh or rejecting at age five were related to internalizing and anxiety symptoms as reported by teachers and parents at age six. In the only study to examine narrative content and coherence across time, children's aggressive content and narrative incoherence at age five were associated with more aggression at age seven (von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000). The current study builds on these findings to evaluate prospective relations between multiple facets of narrative content (i.e., positive and negative representations of self and mother) and narrative coherence, as related to multiple domains of child adjustment in a large and ethnoracially diverse sample.

Narrative representation and race/ethnicity

The majority of studies on narrative representation in young children have employed predominantly European or European-American samples (Oppenheim, 2006; Stadelmann

et al., 2007). Moreover, studies that have employed sufficiently diverse samples (Macfie et al., 1999; Miljkovitch, Pierrehumbert, & Halfon, 2007; Toth et al., 2000) have not examined race/ethnicity. Futh et al. (2008) provided a unique exploration of narrative representation and race/ethnicity by examining teacher and parent reports of behavioral and emotional problems in a diverse sample of school children (i.e., 50% African immigrants) who also completed the Manchester Child Attachment Story Task. Although there were no significant differences in narrative content and behavior problems across racial/ethnic groups, narrative incoherence emerged as a weaker correlate of teacher reported problems among non-White youth relative to their White peers.

The findings of Futh and colleagues (2008) are consistent with extant evidence from research on adolescent and adult narratives suggesting that representational content and/or coherence may evidence differential associations across adjustment outcomes and across racial/ethnic groups. For example, negative content in parents' narratives about their *adult* child is less strongly associated with maladaptive outcomes in non-White ethnic groups than in White families (Rosenfarb, Bellack, & Aziz, 2006). Recent findings demonstrate similar ethnoracial differences in the magnitude of relations between mothers' narrative content about their young child and concurrent child behavior problems, but not between mothers' narrative coherence and child behavior problems (Sher-Censor & Yates, 2014). Given the importance of documenting the generalizability of developmental models across diverse contexts (Garcia Coll et al., 1996), this investigation explored ethnoracial differences in expected relations of children's narrative content and coherence with subsequent adjustment.

Study aims and hypotheses

This study explored both main effect and interactive contributions of preschoolers' relational representations and race/ethnicity to child adjustment outcomes. The first aim of the study was to explore the relation between narrative *content* at age four and child adjustment at age six. Preschoolers who displayed negative content themes (i.e., negative representations of mothers as harsh, rejecting, or controlling and/or negative representations of child characters as aggressive, dishonest, or non-compliant) were expected to endorse more depressive symptoms, display more aggressive behaviors, and evidence less inhibitory control at age six. Consistent with developmental theory (Fonagy et al., 2002; Sroufe, 1990), we anticipated significant associations between children's representations of self and mother. However, we evaluated their independent contributions to later adjustment in recognition of their potentially unique developmental implications, as has been done in prior studies (Grych et al., 2002; Macfie et al., 1999; Toth et al., 1997; Toth, Maughan, Manly, Spagnola, & Cicchetti, 2002; Wan & Green, 2010).

The second aim of this study was to examine the relation between narrative *coherence* at age four and child adjustment outcomes two years later. We hypothesized that narrative coherence would be negatively associated with child depressive symptoms and aggression, and positively related to inhibitory control. Given the presumed salience of narrative coherence for regulating the application of attributional content (Bretherton & Munholland, 1999; Crittenden, 1990; Hesse, 2008), and prior suggestions of stronger relations between representational coherence and adjustment than between content and adjustment in both theory (Bowlby, 1969/1982; Crittenden, 1990; Hesse, 2008) and adult research (Phelps et al., 1998), we expected that obtained relations between narrative coherence and adjustment would be stronger than those between narrative content and adjustment. Moreover, we expected to find especially strong relations between narrative

coherence and inhibitory control given the role of coherence in emergent self-regulation (Shields et al., 2001).

The third aim of this study was to explore racial/ethnic differences in preschoolers' representational features and their prospective associations with child adjustment outcomes. Prior studies have largely overlooked the potential for ethnoracial influences on children's representations and/or their adaptive correlates (see Futh et al., 2008, for exception). However, evidence from adult studies suggests that both caregiving experiences and narrative features may have differential form and/or function across ethnoracial groups (Kochman, 1989; Kwon et al., 2006; Rogan & Hammer, 1998; Rosenfarb et al., 2006).

Method

Participants

The sample was drawn from an ongoing study of representation and regulation among 250 caregiver-preschooler dyads (50% female; M_{age} = 49.05 months, SD = 2.9). The children were 46% Hispanic, 18% Black, 11.2% White, 0.4% Asian, and 24.4% multiracial, and representative of the southern California community from which they were recruited (US Census Bureau, 2011). Caregivers were biological mothers (91.4%), foster/adoptive mothers (3.6%), and grandmothers or other kin (5%). The age six follow-up included 215 dyads (86% retention; M_{age} = 73.30 months, SD = 2.51). Returning dyads did not differ from those who did not on child gender, race/ethnicity, age, IQ, family SES, or narrative representation measures.

Procedure

Participants were recruited for "a study of early learning and development" via community-based child development and preschool programs. Caregivers completed a brief intake screening for exclusionary criteria, including children who were diagnosed with developmental disabilities, outside the age range of 45–54 months, and/or not able to understand English. The three hour laboratory assessment consisted of measures with the child, the caregiver, and the caregiver and child interacting. Measures in these analyses included individually administered assessments of child IQ and narrative representation during the preschool visit (age four), and child-report and observational measures of adjustment two years later. Caregivers were compensated with US$25/hour of assessment and children received a small gift each visit. Procedures were approved by the university's human research review board. Informed consent was obtained from the child's legal guardian at each laboratory visit.

Measures

Child IQ

The Vocabulary and Block Design subtests of the Wechsler Preschool and Primary Scale of Intelligence-III (WPPSI-III) yielded an abbreviated assessment of child IQ (Wechsler, 2002). A composite of Verbal and Performance IQ scores was used in these analyses (M_{IQ} = 95.14, SD = 13.49).

Family Socioeconomic Status (SES)

Socioeconomic status was measured using Hollingshead's (1975) Four-Factor Index of Social Status based on caregivers' education and occupation. Scores ranged from "unemployed with a 10th grade education" (9) to "an attorney with a graduate degree" (66) with higher scores connoting higher SES (M_{SES} = 33.13, *SD* = 12.14, e.g., a licensed vocational nurse with a trade degree).

MacArthur Story Stem Battery (MSSB)

Children completed seven story stems, which were administered using a "family" of grey rabbits from the Calico Critters™ doll series. The examiner initiated each story using a variety of props, and the child was asked to "show me and tell me what happens next." Following a warm-up birthday story, six stories were drawn from the MSSB to capture: (1) parental discipline (Spilled Juice); (2) child injury (Hot Gravy); (3) parental conflict (Lost Keys); (4) separation from parents (Departure); (5) reunion with parents (Reunion); and (6) parent comfort (Park Outing). Coders were trained to reliability by Dr. Jenny Macfie who co-authored the Narrative Coding Manual (Robinson et al., 1996). Coders were unaware of other information about the dyad. The first author coded 100% of the sample and a second coder double-coded 48% of the cases.

Narrative content. Content codes were scored present (1) or absent (0) within each story and composited across stories. Composites for *positive mother representation* were summed across four content ratings for *protective, affectionate, caregiving,*and *helpful* (range 0–24; ICC = .919) and composites for *negative mother representation* were summed across *harsh, rejecting, incongruent,* and *controlling* content ratings (range 0–24; ICC = .889). Global content ratings for child self-representation were coded present/absent for *positive child* (range 0–6; ICC = .674; e.g., child does homework, helps sibling find a bandage) and *negative child* (range 0–6; ICC = .848; e.g., child hits mom, child is dishonest).

Narrative coherence. Each story stem was rated on a 0–10 continuum that captured the organizational characteristics of the narrative, including *no coherence* (0; i.e., child did not respond to the story stem), *low coherence* (3; i.e., child exhibited an understanding of the conflict, but did not offer a full resolution), *moderate incoherence* (5; i.e., child exhibited an understanding of the conflict, but offered an easy resolution by changing the constraints presented in the story stem), *moderate coherence* (8; i.e., child understood the conflict and offered a full resolution with some embellishment), and full coherence (10; i.e., child acknowledged and resolved the conflict with extensive and organized embellishment). Following previous studies (Oppenheim, 2006; Sher-Censor, Grey, & Yates, 2013), reported analyses employed dichotomized coherence scores to highlight the distinction between incoherent (i.e., ratings of 0–4) and coherent (i.e., ratings of 5–10) narratives, which were composited across stories (ICC = .847). However, all findings replicated using the continuous coherence rating.

Depressive symptoms

The Child Depression Inventory-Short Form (CDI-S) assessed child-reported depressive symptoms across 10 items (Kovacs, 1992). Although the readability of the CDI is at a

first-grade level (Kazdin & Peiti, 1982), examiners read each test item aloud to avoid potential confounds with individual differences in reading ability. Children selected one of three options that best described them in the past two weeks (e.g., I am sad once in a while [1]; I am sad many times [2]; I am sad all the time [3]). Items were summed to yield a total depression score. The CDI has been standardized for children ages seven to 17 (Kovacs, 1992), though it has been used at younger ages (Annunziato, Rakotomihamina, & Rubacka, 2007; Biggar & Forehand, 1998). Because the current study employed the CDI at age six when age-normed scores were not available, raw scores were used in these analyses. Despite the younger age of administration in this study, the CDI evidenced adequate internal consistency ($\alpha = .700$). Moreover, the obtained reliability was comparable or superior to that reported in other studies (O'Brien, Bahadur, Gee, Balto, & Erber, 1997; Wampler, Munsch, & Adams, 2002).

Aggression

Observers rated children's aggressive behaviors during a Bobo doll task in which the child was presented with a play room that included toys, games, and a Bobo punching doll (Bandura & Walters, 1963). After inviting the child to play with any of the toys s/he wanted, the examiner lightly tapped the Bobo doll upon exiting the room and the child was observed for five minutes. A global aggression rating was based on the frequency and force of doll strikes from "no aggression" (0), to "moderate aggression" (2), to "excessive aggression" (4) (ICC across 95.7% of cases = .926).

Inhibitory control

Inhibitory control was assessed during a delay of gratification task in which the child was told not to touch a remote controlled robot while an examiner played with it for two minutes. If the child reached for the robot, the examiner stated "Don't touch the robot" in a neutral voice. After two minutes, the child was allowed to play with the robot. A global inhibitory control rating reflected the number of touches and reaches for the robot on a scale from "very poor inhibitory control" (1) to "excellent inhibitory control" (5) (ICC across 100% of cases = .95).

Data preparation and missingness

All variables were sufficiently normal to render parametric statistics valid (Afifi, Kotlerman, Ettner, & Cowan, 2007). One participant was dropped due to missing data on the MSSB at wave 1 and failure to follow-up, yielding a final sample of 249 children. Missing data were estimated using maximum likelihood estimation with the expectation maximization algorithm in SPSS 20.0 for MSSB variables (5.2%), the CDI (14.86%), aggression (15.66%), and inhibitory control (14.86%) as supported by Little's (1988) MCAR test, χ^2 (51) = 46.881, $p = .638$.

Descriptive analyses included a multivariate analysis of variance (MANOVA) to evaluate mean differences by child gender, race/ethnicity, and their interaction with Bonferroni-corrected post-hoc comparisons. Bivariate relations among study variables informed regression analyses. Predictors were centered to reduce multicollinearity (Kraemer & Blasey, 2004).

Results

Descriptive analyses

As depicted in Table 1, a MANOVA (gender x race/ethnicity) revealed significant effects for gender (Wilks' $\lambda = .780$, $p < .001$) and race/ethnicity (Wilks' $\lambda = .739$, $p < .001$), but the interaction was marginal (Wilks' $\lambda = .825$, $p = .071$). Girls expressed more positive mother representations and higher levels of narrative coherence than boys, whereas boys expressed more negative mother and child representations than girls. With regard to adjustment outcomes, boys expressed more aggression than girls, and girls evidenced higher inhibitory control than boys (von Klitzing et al., 2000).

White children earned higher IQ scores than their Hispanic counterparts, and came from families of higher SES than did children from other racial/ethnic groups. White children expressed more positive representations of mother than Hispanic children, and evidenced higher coherence than Black and multiracial children. With regard to adjustment outcomes, White children endorsed fewer depressive symptoms than Black children. Although analyses indicated race/ethnicity effects for aggression and inhibitory control, post-hoc analyses did not reveal significant pairwise differences.

Bivariate analyses

Table 2 depicts bivariate relations among select covariates (i.e., child age, child IQ, family SES), MSSB narrative variables (i.e., positive and negative mother representations, positive and negative child representations, narrative coherence), and child adjustment outcomes (i.e., child-reported depressive symptoms, observed aggression, and observed inhibitory control). Child age and IQ were positively associated with positive mother representation, narrative coherence, and inhibitory control. Child IQ was also positively associated with family SES, and both IQ and family SES were negatively related to depressive symptoms.

Positive mother representation was positively related to positive child representation, whereas negative mother representation was related to more negative child representations. Positive and negative representations were not related to one another within both mother and child representations. Narrative coherence was associated with more positive mother and positive child representation, and with lower negative mother and negative child representation.

Negative mother representation was related to higher levels of aggression and lower inhibitory control. In addition, negative child representation was positively associated with aggression. Narrative coherence was associated with lower levels of depressive symptoms and aggression, and with higher inhibitory control. Child aggression was negatively associated with inhibitory control.

Regression analyses

Six hierarchical regressions evaluated relations between preschoolers' narrative representations and later adjustment while holding the covariates of child gender (i.e., male = 0, female = 1), age (months), IQ, and family SES constant. Children's race/ethnicity was effect coded for White, Black, and Hispanic using multiracial as the reference group and entered in the second block of the regression (Cohen, Cohen, West, & Aiken, 2003). To evaluate the unique contribution of the narrative feature of interest (i.e., negative mother representation in two regressions, negative child representation in one regression, and

Table 1. Descriptive statistics for study variables by child gender and race/ethnicity.

	Child Gender		Child Ethnicity					
	Male	Female	White	Black	Hispanic	Multi		
	M	*M*	*M*	*M*	*M*	*M*		
Variable	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	F_{gender}	$F_{race/eth.}$
Age (months)	49.10	48.97	49.54	48.42	49.33	48.71	**1.63**	**1.71**
	(2.88)	(2.98)	(2.69)	(3.23)	(2.92)	(2.82)		
Child IQ	93.69	96.60	101.05	94.70	92.41[a]	97.86	**1.23**	**4.67****
	(12.94)	(13.91)	(17.01)	(13.05)	(11.79)	(13.94)		
Family SES	31.39	32.87	40.04	32.40[a]	30.49[a]	31.42[a]	**0.92**	**4.53****
	(12.01)	(12.26)	(13.76)	(13.04)	(10.81)	(11.97)		
Positive Mother	2.32	3.36	4.06	2.67	2.54[a]	2.95	**7.65****	**3.26****
	(2.10)	(2.43)	(3.55)	(2.12)	(2.13)	(1.96)		
Negative Mother	1.17	0.68	0.88	1.20	0.79	1.00	**14.70*****	**2.20**
	(1.13)	(0.90)	(0.87)	(1.18)	(1.04)	(1.01)		
Positive Child	1.77	1.95	2.14	1.94	1.69	1.98	**2.03**	**1.07**
	(1.27)	(1.30)	(1.15)	(1.28)	(1.35)	(1.22)		
Negative Child	1.49	0.64	1.11	1.08	1.10	0.96	**18.94*****	**0.19**
	(1.52)	(0.78)	(1.02)	(1.49)	(1.41)	(0.93)		
Coherence	1.97	3.09	3.31	2.30[a]	2.54	2.34[a]	**23.47*****	**3.16****
	(1.42)	(1.49)	(1.62)	(1.47)	(1.52)	(1.59)		
Child Depression	4.61	4.54	3.03	5.47[a]	4.79	4.21	**0.43**	**3.17****
	(3.67)	(3.50)	(3.26)	(3.47)	(3.54)	(3.68)		
Aggression	1.65	0.98	1.34	1.53	1.13	1.49	**31.41*****	**3.68****
	(0.99)	(0.85)	(1.05)	(1.21)	(0.87)	(0.92)		
Inhibitory Control	4.09	4.33	3.97	4.04	4.39	4.10	**5.17***	**3.96****
	(0.91)	(0.75)	(0.96)	(1.05)	(0.73)	(0.76)		

Note: $F_{gender*race/ethnicity}$ not shown due to nonsignificant omnibus. [a] different from White. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 2. Bivariate correlations among study variables.

		1	2	3	4	5	6	7	8	9	10	11
1.	**Age (months)**	––										
2.	**Child IQ**	−.05	––									
3.	**Family SES**	−.05	.25***	––								
4.	**Positive Mother**	.15*	.22***	.06	––							
5.	**Negative Mother**	−.08	−.06	.03	.02	––						
6.	**Positive Child**	.03	.05	.02	.27***	.05	––					
7.	**Negative Child**	.05	−.08	.03	−.08	.41***	.04	––				
8.	**Coherence**	.14*	.26***	.08	.52***	−.26***	.29***	−.30***	––			
9.	**Child Depression**	−.10	−.40***	−.23***	−.12	−.02	−.08	−.01	−.20**	––		
10.	**Aggression**	−.03	−.05	.00	−.05	.25***	.02	.38***	−.20**	.00	––	
11.	**Inhibitory Control**	.20**	.12*	.00	−.00	−.30***	−.05	−.01	.22***	−.04	−.24***	––
	M	**49.05**	**95.14**	**32.13**	**2.84**	**.93**	**1.86**	**1.06**	**2.53**	**4.57**	**1.32**	**4.21**
	(*SD*)	**(2.91)**	**(13.49)**	**(12.14)**	**(2.33)**	**(1.05)**	**(1.29)**	**(1.28)**	**(1.56)**	**(3.58)**	**(.98)**	**(.84)**

Note: *$p < .05$, **$p < .01$, ***$p < .001$.

narrative coherence in three regressions), we included the two remaining MSSB constructs as covariates in the third block. Next, the narrative feature of interest was entered in the fourth block, and three interaction terms between the narrative feature of interest and each race/ethnicity effect were entered in the fifth and final block.

Although significant at the bivariate level, negative mother representation at age four was not significantly related to aggression at age six in the multivariate model (see Table 3). However, negative mother representation during the preschool period was associated with poorer inhibitory control at age six, beyond the significant contributions of age, IQ, and negative child representation (see Table 3). White children evidenced lower inhibitory control at age six, whereas Hispanic children evidenced higher inhibitory control at follow-up, and there was no main effect of being Black. Significant interactions between negative mother representation and both White and Black effects suggested a relatively stronger negative association between negative mother representation and inhibitory control among White children and a weaker effect of negative mother representation on inhibitory control among Black children. However, these simple slopes were not probed further because the variance in inhibitory control that was accounted for by these effects was of marginal significance ($\Delta R^2 = .025$; F [3,236] = 2.587, $p = .054$).

Negative child representation was associated with more aggression after controlling for both demographic and narrative covariates, including the significant association between female gender and lower aggression (see Table 4). Despite a negative main effect of Hispanic ethnicity, all interactions were not significant.

Table 3. Regressions of child adjustment outcomes on preschoolers' negative mother representation.

	Aggression			Inhibitory Control		
	b	SE	β	b	SE	β
Child Gender	−.46	.13	−.24***	.15	.11	.09
Child Age (Months)	−.01	.02	−.03	.04	.02	.15*
Child IQ	−.00	.00	−.03	.01	.00	.14*
Family SES	.00	.01	.00	.00	.00	−.01
Block 1 ΔR^2		**.12*** **			**.08*** **	
Child White Effect	.01	.14	.01	−.30	.12	−.21*
Child Black Effect	.11	.12	.07	.01	.10	.01
Child Hispanic Effect	−.27	.09	−.22**	.27	.08	.26***
Block 2 ΔR^2		**.04***			**.05****	
Negative Child Representation	.22	.05	.29***	.10	.04	.15*
Narrative Coherence	.01	.04	.01	.06	.04	.11
Block 3 ΔR^2		**.08*** **			**.02**	
Negative Mother Representation	.10	.07	.11	−.31	.06	−.38***
Block 4 ΔR^2		**.00**			**.06*** **	
Negative Mother * White	.12	.15	.07	−.32	.13	−.22*
Negative Mother * Black	.07	.10	.05	.19	.09	.16*
Negative Mother * Hispanic	−.13	.09	−.11	.13	.08	.13
Block 5 ΔR^2		**.01**			**.03**	
Total R^2		**.25**			**.23**	
F (10, 239)		**6.13*** **			**5.52*** **	

Note: Regression coefficients are from the final step of hierarchical linear models using an effect coding scheme to evaluate White, Black, and Hispanic groups. Coefficients reflect the estimated difference between the grand mean and the racial/ethnic group coded 1. Child Gender (male = 0, female = 1). *$p < .05$, **$p < .01$, ***$p < .001$.

Table 4. Regression of child adjustment outcomes on preschoolers' negative child representation.

	Aggression		
	b	*SE*	*β*
Child Gender	−.48	.12	−.25***
Child Age (Months)	−.01	.02	−.04
Child IQ	−.00	.00	−.03
Family SES	.00	.01	.00
Block 1 ΔR^2		**.12*** **	
Child White Effect	−.01	.14	−.00
Child Black Effect	.13	.12	.09
Child Hispanic Effect	−.26	.09	−.22**
Block 2 ΔR^2		**.04***	
Negative Mother Representation	.04	.06	.05
Narrative Coherence	.01	.04	.01
Block 3 ΔR^2		**.02***	
Negative Child Representation	.27	.06	.35***
Block 4 ΔR^2		**.06*** **	
Negative Child * White Effect	.18	.13	.10
Negative Child * Black Effect	.08	.09	.06
Negative Child * Hispanic Effect	−.09	.07	−.09
Block 5 ΔR^2		**.02**	
Total R^2		**.26**	
F (10, 239)		**6.39*** **	

Note: Regression coefficients are from the final step of hierarchical linear models using an effect coding scheme to evaluate White, Black, and Hispanic groups. Coefficients reflect the estimated difference between the grand mean and the racial/ethnic group coded 1. Child Gender (male = 0, female = 1). *$p < .05$, **$p < .01$, ***$p < .001$.

There were not significant direct or interactive relations between narrative coherence and child-reported depressive symptoms or observed aggressive behaviors in the multivariate models (see Table 5). However, narrative coherence was positively associated with inhibitory control, even when the significant contributions of age, race/ethnicity, and negative mother and child representations were held constant. Although a significant interaction indicated this relation was weaker among Hispanic children relative to the sample as a whole, this effect did not explain significant variance in inhibitory control ($\Delta R^2 = .021$; F [3,236] = 2.187, $p = .09$; see Table 5).

Discussion

This investigation documented prospective associations between the narrative content *and* coherence of preschoolers' representations and children's adjustment in multiple domains two years later. Hierarchical linear regression analyses probed bivariate relations of (a) negative mother representation with more aggression and less inhibitory control, (b) negative child representation with more aggression, and (c) narrative coherence with less depression, less aggression, and more inhibitory control. Children who portrayed negative representations of mother in their play narratives at age four evidenced lower levels of inhibitory control in an observed delay of gratification task at age six over and

Table 5. Regressions of child adjustment outcomes on preschoolers' narrative coherence.

	Depression			Aggression			Inhibitory Control		
	b	SE	β	b	SE	B	b	SE	β
Child Gender (Female = 1)	.42	.46	.06	−.50	.12	−.25***	.17	.11	.10
Child Age (Months)	−.12	.07	−.10	−.01	.02	−.03	.05	.02	.15**
Child IQ	−.09	.02	−.35***	−.00	.01	−.01	.01	.00	.12
Family SES	−.04	.02	−.14*	.00	.01	−.00	.00	.00	.02
Block 1 ΔR^2		**.19*** **			**.12*** **			**.08*** **	
Child White Effect	−.50	.56	−.08	.04	.15	.02	−.39	.13	−.27**
Child Black Effect	.79	.43	.14	.11	.12	.08	.07	.10	.05
Child Hispanic Effect	−.08	.34	−.02	−.28	.09	−.23**	.28	.08	.27***
Block 2 ΔR^2		**.01**			**.04***			**.05****	
Negative Mother Representation	−.19	.22	−.06	.05	.06	.05	−.22	.05	−.28***
Negative Child Representation	−.09	.19	−.03	.23	.05	.30***	.10	.04	.16*
Block 3 ΔR^2		**.00**			**.09*** **			**.07*** **	
Child Narrative Coherence	−.22	.17	−.10	−.02	.05	−.02	.11	.04	.20**
Block 4 ΔR^2		**.01**			**.00**			**.01**	
Narrative Coherence * White	.02	.32	.01	−.05	.09	−.05	.11	.07	.13
Narrative Coherence * Black	.05	.28	.01	-.02	.08	-.02	.02	.07	.02
Narrative Coherence * Hispanic	-.19	.21	-.07	.10	.06	.13	-.12	.05	-.19*
Block 5 ΔR^2		**.00**			**.01**			**.02**	
Total R^2		**.22**			**.25**			**.23**	
F (10, 239)		**5.14*** **			**6.14*** **			**5.41*** **	

Note: Regression coefficients are from the final step of hierarchical linear models using an effect coding scheme to evaluate White, Black, and Hispanic groups. Coefficients reflect the estimated difference between the grand mean and the racial/ethnic group coded 1. Child Gender (male = 0, female = 1). *$p < .05$, **$p < .01$, ***$p < .001$.

above the covariates of child gender, age, IQ, SES, race/ethnicity, negative child representation, and narrative coherence. Moreover, the magnitude of this relation varied by race/ethnicity with the strongest effect among White children and the weakest effect among Black children. Positive relations between negative child representation and expressed aggression during an observational Bobo doll task two years later remained significant in the multivariate model. Finally, although bivariate relations revealed consistent associations between narrative coherence and children's prospective adjustment, only the relation between narrative coherence and higher inhibitory control remained significant in the multivariate model, with particularly strong relations evident for Hispanic children.

These findings join extant evidence of relations between early caregiving and childhood representation (Sher-Censor & Oppenheim, 2004; Stadelmann et al., 2007; Stronach et al., 2011; Toth et al., 2000) to support the corresponding tenet of attachment theory that preschoolers' representations are associated with later socioemotional adaptation. Moreover, this study extends prior evidence of concurrent relations between narrative content and child behavior problems (Beresford et al., 2007; Oppenheim et al., 1997; Page & Bretherton, 2003; Wan & Green, 2010) to demonstrate prospective associations of *both* narrative content and coherence with adjustment indicators two years later in a large and diverse sample.

As expected, narrative coherence was consistently related to adjustment at the bivariate level, however, only the prediction to inhibitory control remained significant when covariates were controlled. The relation between coherence and inhibitory control was expected to be especially robust given theoretical assertions that coherence reflects the capacity to modulate access to relational attributions (i.e., representational content) in the context of real-world exchanges (Bretherton & Munholland, 1999; Crittenden, 1990; Hesse, 2008), and prior evidence from Shields and colleagues (2001) showing detrimental effect of narrative incoherence on emotion regulation. At the same time, however, the current data indicated that coherence is especially linked with age, IQ, and other sociodemographic features, which may have accounted for the absence of multivariate relations of coherence with child-reported depression and observed aggression.

Consistent with theories of development and attachment (Bowlby, 1969/1982; Fonagy et al., 2002; Sroufe, 1990), facets of preschoolers' representation were significantly correlated. Preschoolers' representations of mother and child were positively associated, particularly for negative content. The stronger association between negative mother and negative child representation, relative to that between positive mother and positive child representation may reflect the relative rigidity of negative representational content such that efforts to differentiate self from (m)other along positive and flexible representational dimensions is less developmentally challenging than along negative dimensions. Likewise, preschoolers' narrative content was associated with ratings of narrative coherence, and these relations were stronger for negative representational themes. Here, too, this differential relation likely reflects the greater challenges inherent in narrating about negative themes and events than about positive content (Bretherton, 1990). Importantly, despite significant correlations within and across representational content and coherence, the current findings point to their unique implications for understanding children's later adaptation and support ongoing investigations of these distinct representational facets.

Ethnoracial differences in patterns of representation and adaptation highlight the need for ongoing efforts to examine narrative processes in diverse samples. White children produced narratives with more positive representations of mother than Hispanic children and more coherence than Black and multiracial children. Although these findings counter

those of Futh and colleagues (2008), who did not find ethnoracial differences in narrative content, their British sample was limited to just two racial groups (i.e., Black and White) and may have confounded ethnicity with acculturative status (i.e., 50% were African immigrants).

Beyond main effects, child race/ethnicity evidenced modest moderating effects on observed relations between preschoolers' representational features and indices of child adaptation two years later. Relations between negative mother representation and inhibitory control were particularly strong for White children, but relatively weaker for Black children. The moderating influence of ethnicity on narrative content may be consistent with adult studies wherein parents' critical content in the context of narratives about their adult child was associated with higher levels of psychotic symptomatology in White families, but with lower symptomatology in Black families (e.g., Rosenfarb et al., 2006). These findings highlight the cultural context of parenting such that, for example, argumentativeness and confrontation may be perceived as care and concern in Black families, but as critical and harsh in White families (Kochman, 1989; Rogan & Hammer, 1998).

Attachment theorists have suggested that narrative coherence may be more culturally robust in its developmental implications than narrative content because it reflects universal communication features (Bakermans-Kranenburg & van IJzendoorn, 2009). However, the present findings indicated that the association between narrative coherence and better inhibitory control was less pronounced among Hispanic children relative to the full sample. These findings warrant further replication and consideration in future research. It may be that narrative coherence was more strongly influenced by non-representational factors (e.g., verbal ability) among Hispanic children because they were more likely to be English Language Learners. However, although post-hoc analyses indicated that relations between IQ and narrative coherence varied across racial/ethnic groups, the most robust relations were obtained for Black and multiracial children with non-significant associations between IQ and coherence in the White and Hispanic subsamples. Although these interactive findings did not account for significant variance in the overall effect of narrative features on child adjustment, they are consistent with accumulating evidence that representational processes may have differential meaning across racial/ethnic groups, and highlight the need for greater consideration of cultural issues in research on caregiving, representation, and adaptation.

In addition to culturally sensitive research questions and designs, further research is needed to identify processes that account for relations between preschoolers' representations and childhood adjustment within and across ethnic groups. Attachment theory holds that the content and coherence of children's internalized representations reflect caregiving quality and guide subsequent adjustment (Bowlby, 1969/1982; Sroufe et al., 1999). These models are also compatible with social-cognitive conceptualizations of relational schemas and scripts as cognitive tools to orient, organize, and access relevant experiences in the context of contemporary relationships (Crick & Dodge, 1994; Waters & Waters, 2006). However, studies need to evaluate hypothesized relations among caregiving, representation, and adjustment with particular attention to distinctions between narrative content and coherence, as well as to differential patterns across racial/ethnic groups.

Strengths and limitations

This investigation evaluated prospective associations of the content and coherence of preschoolers' relational representations of mother and child with later measures of

adjustment, including child-reported depressive symptoms and observer-rated aggression and inhibitory control. Strengths of this investigation include the use of a large and diverse sample, the application of multiple methods and informants, and the explicit consideration of salient covariates, including race-ethnicity, in a longitudinal research design. Yet these finding are qualified by a number of limitations.

First, we administered the CDI to six-year-old children who fall below the suggested age range of seven to 17 (Kovacs, 1992). The oral administration of the test items and our use of raw (rather than age-normed) scores may have mitigated these concerns, but it remains possible that the obtained findings regarding child-reported depressive symptoms were biased by this assessment limitation. Although the comparable consistency of our obtained reports with other age-appropriate samples (O'Brien et al., 1997; Wampler et al., 2002), as well as the prior use of the CDI with very young children (Annunziato et al., 2007; Biggar & Forehand, 1998) bolsters our confidence in the current findings, they must be interpreted with caution in light of this limitation. Second, the current measures of expressed aggression, inhibitory control, and, to a lesser extent, narrative representation, await further validation across racial/ethnic groups. Third, the two-wave design limited directional conclusions regarding observed relations among preschoolers' representations and child adjustment. Finally, the narrative coding protocol evaluated specific parenting actions, but global child behaviors such that there was greater variation in mother representation composites, which ranged from 0 to 24, than child composites, which ranged from 0 to 6. The increased variability of mother representation may have contributed to the apparent robustness of relations with mother representation.

Implications and future directions

Accessing the inner experience of young children despite their limited verbal abilities is an ongoing challenge for developmental scientists and child clinicians who seek to understand and promote adaptation in development. The present findings speak to the predictive validity of story-stem techniques for assessing the themes and organization of children's early representations of self and (m)other, and for understanding children's later socioemotional adjustment. In so doing, this study can inform future research and interventions related to parenting, child representation, and adjustment.

Empirically, children's story-stem narratives offer a powerful tool for testing theoretical models of intergenerational transmission from parents' own experiences and representations to children's representations and adjustment. Prior work with this and other samples has shown positive relations between mothers' own representations of their preschool aged child and children's narrative content and coherence in the MSSB (Bretherton, Biringen, Ridgeway, Maslin, & Sherman, 1989; Sher-Censor et al., 2013; Yoo, Popp, & Robinson, 2014). Likewise, a study by Schechter and colleagues (2007) demonstrated the impact of maternal violence exposure on children's representational content and coherence in the MSSB. As a conduit by which experience may be carried forward across generations and over time, story-stem narratives have powerful implications for both research and practice.

Child clinical assessment batteries will profit from the added insights afforded by narrative tasks because they provide a unique a lens through which children's internal states and general beliefs about themselves and relationships with others may come into focus (Emde et al., 2003; Robinson, 2007). Moreover, the flexibility of the story stem method is well-suited to culturally- and developmentally-sensitive research and practice as stems can be selected and/or modified to address specific themes or issues (e.g., loss,

violence, divorce, competition; Murray, 2007; Robinson, 2007). Efforts to evaluate the role of narrative representations of other and of self with regard to content and coherence may reveal specific pathways to disorder, particularly when considered in tandem with the central conflict presented in a given story or set of stories (Murray, 2007).

Direct interventions may also target representational processes as agents of therapeutic change (Emde, 2007; Toth et al., 2002). Narratives may serve as a conduit to experiential integration and healing as narrative meaning making has been associated with improved behavioral and psychological well-being in studies of preschoolers (Oppenheim et al., 1997), adolescents, and adults (Alvarez-Conrad, Zoellner, & Foa, 2001; Pennebaker, 1993). Indeed, the capacity to construct balanced and coherent life narratives may develop in the context of psychotherapy and contribute to socioemotional adjustment.

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