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Depressed and healthy preschoolers' internal representations of their mothers' caregiving: Associations with observed caregiving behaviors one year later

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Abstract

This study examined diagnostic group differences in children's internal representations of their mothers and mothers' parenting strategies 1 year later. Mother – preschool child dyads ($N = 279$) were examined. The sample included 151 healthy, 75 depressed, and 53 disruptive disordered preschoolers. The MacArthur Story Stem Battery (MSSB) was administered at baseline. One year later, mothers' caregiving strategies were measured. Results indicated that higher depression severity was associated with preschoolers' greater use of negative and disciplinarian maternal representations. More positive maternal representations had supportive mothers who often expressed positive affect 1 year later. Preschoolers' negative and disciplinarian representations were associated with mothers' later nonsupportive behaviors and negative affect. Results suggest that the MSSB may be a useful child-informant method for interpreting depressed children's internalization of caregiving relationships.

Keywords

Childhood depression; preschoolers; mood disorders; child-informant; story stem responses

Introduction

Previous literature has demonstrated that a valid form of DSM-IV Major Depressive Disorder (MDD) can arise in children as young as 3 years old (Luby, Heffelfinger, Mrakotsky, Brown, Hessler, & Spitznagel, 2003a; Luby et al., 2003b). Findings suggest that these early onset depressive symptoms may be severe, associated with social impairment and therefore clinically significant (Luby et al., 2002). Although previous findings as well as ongoing research continue to improve our understanding of the nosology, course and outcomes associated with early age onset depression, important gaps remain in the literature. Specifically, research has yet to address how depressed preschoolers perceive themselves and their primary relationships compared to healthy children.

Most researchers agree that preschool-age children often lack the developmental capacities to directly verbalize specific features of their own internal feelings, mood states, and

emotions in ways that are sufficiently reliable and valid to inform psychiatric diagnoses. As a result of the developmentally immature communication skills of young children, existing data examining preschool onset depression is almost entirely based on caregiver (e.g., teachers, parents, or daycare providers) report or observation. The sole reliance on adult informants fails to elucidate the internal experiences associated with early onset mood disorders of the preschool-age children themselves. Research tools that tap the internal lives of preschoolers with depression could expand our understanding of the disorder and therefore contribute to the design of age appropriate interventions. The purpose of the current study was to examine whether depressed preschoolers' internal representations of their mothers' caregiving behaviors as narrated by preschoolers using the story stem method, were different from healthy and DSM-IV disruptive disorder (i.e., Attention Deficit Disorder ADD, Oppositional Defiant Disorder ODD, and Conduct Disorder CD) same-age peers. It was also expected that if preschoolers' internal representations of their mothers differed as a function of their diagnosis, mothers' parenting strategies observed 1 year later would also differ significantly. The current study focused on preschoolers' representations of their primary caregivers as the parent – child relationship is thought to be central to the emotional world of the young child.

Early childhood depression

Empirical findings have indicated that rates of preschool psychiatric disorders as well as the percentage of comorbid disorders in preschool populations are similar to those seen in older children (Egger & Angold, 2006). Luby et al. (2003a, b) have previously demonstrated that a specific and stable depressive symptom constellation can be identified in preschool children for which discriminant validity from other non-affective psychiatric disorders (e.g., ADHD/Oppositional Defiant Disorders) has been established. Sensitive and specific symptoms of preschool depression included sadness, irritability, anhedonia, whining and crying, and excessive self-blame. Luby et al. (2002) have demonstrated significant differences between the emotional themes (e.g., high levels of death-related or suicidal themes in play, lack of pleasure in play) of preschoolers in a depressed group versus those in healthy and DSM-IV disruptive disorder (i.e., Attention Deficit Disorder ADD, Oppositional Defiant Disorder ODD, and Conduct Disorder CD) groups as reported by their parents. Evidence has also been provided that anhedonic preschoolers fail to brighten in response to joyful events (Luby, Mrakotsky, Heffelfinger, Brown, & Spitznagel, 2004b).

While little is known about the onset and course of preschool depression, Luby, Belden, and Spitznagel (2006a) examined the associations between a family history of affective disorders, recent stressful life events, and outcomes in preschool onset MDD. A relatively weak but significant correlation indicated that preschoolers with a higher proportion of family members diagnosed with MDD, bipolar disorder (BP), and/or suicidality had higher depression severity scores. A stronger correlation was found between preschoolers' experiences of recent stressful life events and higher depression severity scores assessed 6 months later. When examined simultaneously results indicated that the association between preschoolers' family history and depression severity was mediated by preschoolers' experiences of recent stressful life events. These findings suggest that environmental factors might play a key role in the onset and course of preschool onset depression.

The role of parenting behaviors

A small body of empirical and theoretical literature also suggests that specific parenting behaviors are associated with early onset MDD. As a possible theoretical explanation for the role of parenting behaviors in childhood depression, Cole and Rehm (1986) combined cognitive behavioral models for depression with Bandura's explanation for the processes by which children internalize and adapt to the external demands placed on them by their parents. Specifically, they hypothesized that compromised self-control strategies (e.g., children's inability to regulate negative emotions) found in depressed children are transmitted from parent to child through internalization processes. In keeping with this hypothesis, recent findings indicated that mothers who display negative emotional expressivity more frequently during interactions within the family have preschoolers with significantly higher depression severity scores (Belden & Luby, 2006). One possible explanation for these findings is that children internalized their mothers' chronic expression of negative emotions. The internalization of negative emotion expressions may also have decreased children's capacities to develop effective emotion regulation strategies.

Dysfunctional parenting, such as chronic expressions of negative emotions or hostile/coercive behaviors, fails to provide children with the adequate emotional support necessary to develop their own effective strategies for self-regulation of negative and positive emotions (Robinson, Herot, Haynes, & Mantz-Simmons, 2000). Dysfunctional parenting results in a lack of mutual emotional reciprocity between parent and child. Without emotional reciprocity and supportive parenting it is thought that children will not gain exposure to the necessary modeling opportunities and environmental conditions to practice and implement their developing emotion regulation skills. As a result of experiencing an emotionally non-supportive relationship with their primary caregiver these children are at a greater risk of becoming chronically emotionally dysregulated, which is conceptualized as a core feature of early onset depression (Luby & Belden, 2006a). The internalizing features of depression are likely to play a unique role in this early dyadic risk relationship making children who have constitutional risk for depression potentially vulnerable to non-optimal parenting in unique ways. Based on this, it was hypothesized that specific negative internal representations of caregiving behaviors would be associated with the diagnosis of depression in preschool children compared to those with other disorders.

Parenting behaviors and children's representations of parents

Prior studies have examined associations between severely dysfunctional parenting behaviors (e.g., abuse and/or maltreatment) and specific features of children's internal representations of caregivers depicted during the MacArthur Story Stem Battery (MSSB). Macfie, Toth, Rogosch, Robinson, Emde, and Cicchetti (1999) reported that maltreated children displayed fewer representations of parental distress relief (i.e., parents' response to children's verbal or non-verbal cues for help or empathy) in narratives compared to non-maltreated children. Furthermore, Toth, Cicchetti, Macfie, and Emde (1997) showed that maltreated and abused preschoolers were more likely to represent their parents negatively, as more controlling, and to have fewer positive and effective discipline representations during their story stem narratives. Taken together, these findings provide support for the penetrating effects of dysfunctional caregiving (e.g., maltreatment and/or abuse) early in life in relation

to children's internal representations of their parents detectable through children's story stem narratives. These findings suggest that narrative techniques may provide valuable insights into young children's internal models of their caregivers and as such may also be useful in the clinical assessment process. In particular, preschoolers with psychiatric disorders may have unique narrative responses as a function of their mental state.

Children's representation of parental figures in narratives has been demonstrated to be associated with the observable behavioral characteristics of the parent – child relationship. Oppenheim, Emde, and Warren (1997a) examined the developmental changes in typically developing preschoolers' representations of their parents over a 1-year period. They found that preschoolers who represented their mothers as more effective disciplinarians, more nurturing and positive, and less negative had lower parent-reported CBCL scores concurrently as well as 1 year later. Overall, results from longitudinal studies of normative populations indicate that preschoolers' internal representations of their mothers are associated with observed maternal behavior as well as the child's concurrent and later socioemotional functioning.

Parenting behaviors in dyads with depressed preschoolers

There is a dearth of research examining the nature and quality of parent – child dyadic interactions among preschoolers with early onset mood disorders. Two exceptions are findings from Belden and Luby (2006) and Luby, Belden, Stalets, Blankenship, and Spitznagel (2006) in which the dynamic interplay of preschool mood disorders, parenting strategies, and children's behaviors during a semi-structured mildly stressful parent – child interaction task were investigated. Belden and Luby (2006) found that mothers who used supportive caregiving strategies infrequently had preschoolers with higher depression severity scores (i.e., the total number of DSM-IV MDD symptoms endorsed for the child). The authors also found that higher depression severity scores were associated with preschoolers' lack of persistence, compliance, and enthusiasm during the mildly stressful dyadic task. Interestingly, results also indicated that after taking into account the amount of support mothers provided during the dyadic task, the relationships between preschoolers' depression severity and their observed persistence and compliance during the task became non-significant. That is, the effect of preschoolers' depression severity on their behavioral outcomes during the parent – child task was mediated by the amount of support they received from their mothers. Luby et al. (2006a, 2006b) also found that depressed preschoolers exhibited less enthusiasm and had a less positive experience (i.e., feelings of success or competence) with their parents during the mildly stressful interaction task compared to healthy preschoolers. Taken together, findings suggest depressed preschoolers are less likely to experience parenting strategies associated with the development of more effective emotion regulation capacities.

Preschoolers' internal representations of their parents as positive (e.g., supportive and nurturing), negative (e.g., coercive and controlling), or disciplinary (demanding and limit setting) were of particular interest in the current study. These representations could potentially provide explanations for specific pathways through which parenting might influence children's emotional behaviors and mood states. These internal representations

may indicate a specific mechanism through which parenting influences contribute to preschool onset depression. Such findings would provide additional support for the claim that parenting behaviors are associated with early onset MDD. They would suggest that one possible mechanism (internal representations) through which sub-optimal (or dysfunctional) parenting has a negative effect on preschool depression is through internalization processes evident in their narrative representations of caregiving.

Aims of the current study

While much progress has been made to inform our understanding of the internal representations of healthy children and those with externalizing behaviors, an important gap in the literature still exists related to the caregiving representations of young children with internalizing disorders, specifically depression. The current study investigated the relationships between preschoolers' depression severity and their internal representations of their primary caregivers. Based on the literature reviewed above, it was expected that preschoolers with higher depression severity scores would represent their mothers as less positive, more negative, and disciplinarian during their story stem episodes. A second aim of this study was to test whether preschoolers' internal representations of their mothers at baseline predicted the type and frequency of caregiving strategies that mothers used during a mildly stressful parent – child interaction task 1 year later. It was expected that children who represented their mothers as negative and as harsh disciplinarians at baseline would have mothers who would be observed using supportive strategies and positive affect less frequently and nonsupportive strategies and negative affect more frequently when observed 1 year later.

In order to address the aims of the current study a behaviorally diverse sample of preschoolers were examined as a whole or divided into groups using diagnostic classifications, depending upon and appropriate to the specific hypothesis being tested. Based on the prior literature finding age and gender differences in children's narrative representations (e.g., Oppenheim et al., 1997a), age and gender were examined to determine whether they contributed significantly to outcomes and might need to be controlled in multivariate analyses.

Method

Participants

Three hundred two preschoolers between 3.0 and 5.11 years old participated in a comprehensive developmental and mental health assessment at the Early Emotional Development Program (EEDP) at the Washington University School of Medicine in St Louis, MO. Data used for the current study came from the first two waves (1-year interval) of a longitudinal study examining the nosology of preschool depression. Caregivers of preschool children were recruited from pediatricians' offices, daycares, and early childhood centers in the St. Louis metropolitan area using the Preschool Feelings Checklist (PFC; Luby, Heffelfinger, Mrakotsky, & Hildebrand, 1999), which is a brief validated screening tool for early-onset emotional disorders (Luby, Heffelfinger, Koenig-McNaught, Brown, & Spitznagel, 2004). Parents who endorsed two or more "internalizing" and/or two or more

“externalizing” items on the checklist as well as parents who endorsed no symptoms were contacted by a trained research assistant via the phone to establish whether inclusion and exclusion criteria for study participation were met. Excluded were children with chronic medical illnesses and/or neurological problems and those with pervasive developmental disorders, language, and/or cognitive delays that would have prohibited their ability to understand the study questions. Sample demographic variables can be seen in Table I. The current sample had a slightly unequal but large sample of both male and female participants. A strength of the current sample was the ethnically diverse distribution of the preschool participants.

All preschoolers were assigned to one of three diagnostic group classifications based on structured clinical interview of the parent (see below) as follows: Healthy ($n = 151$), Major Depressive Disorder (MDD; $n = 75$), or DSM-IV Disruptive Disorder (Disruptive; $n = 53$). To be included in the Disruptive group preschoolers must have had no diagnosis of MDD as well as one or more of the following disorders: Oppositional Defiant Disorder, ODD; Conduct Disorder, CD; Attention Deficit Hyperactive Disorder, ADHD; and/or Bipolar Disorder, BP. It is important to note that consistent with prior literature (Egger et al., 2006; Luby & Belden, 2006b; Luby et al., 2002) there were high rates of comorbidity within the depressed group (bipolar disorder = 28%, ADHD = 47%, ODD = 51%, CD = 28%, one or more anxiety disorders = 41%); however, for the purpose of this investigation, the comorbidity was not addressed.

Procedures—At baseline, parent – child dyads that met all inclusion and exclusion criteria and agreed to study participation came to the EEDP for a comprehensive 3 – 4 hour laboratory assessment. While children completed measures of emotional, cognitive, and social development, their primary caregivers were interviewed separately about a number of issues including their children’s psychiatric symptoms using the Preschool-Age Psychiatric Assessment (PAPA; Egger, Ascher, & Angold, 1999). At baseline (T1), children completed measures of emotional, cognitive, and social development, including story stem narratives; their primary caregivers (93% biological parents) were interviewed separately about their preschoolers’ developmental skills and impairments, as well as their children’s behavioral/emotional symptoms. The warm up and four story stems were administered approximately 45 minutes after beginning the cognitive assessment (hence 45 minutes after separation from primary caregiver), thus allowing the child time to acclimate to the lab environment and the interviewer time to develop rapport. Parents completed the interview in a separate room and did not have contact with the child prior to the story stems unless the child requested a visit. One year later (T2), dyads returned to the EEDP, participated in a parent – child interaction task, and then both members of the dyad completed an assessment similar to their T1 visit.

Measures

Diagnostic assessment—At baseline, PAPA (Egger et al., 1999) was used to determine preschoolers’ depression severity score as well as their diagnostic classification. PAPA is an interviewer-based diagnostic assessment with empirically established test re-test reliability designed for use in children aged 2.0 – 6.0 (Egger et al., 2006). A trained interviewer administered the PAPA, which was also audiotaped for later review and quality control. The

PAPA includes all relevant DSM-IV criteria and their age appropriate manifestations. A sum score of PAPA MDD items was also generated and used to measure depression severity dimensionally. Depression severity was the total number of depression symptoms (i.e., irritable, sad, anhedonia, weight change, sleep problems, psychomotor agitation, fatigue, guilt, cognitive impairment, and thoughts of death) endorsed by parents in regard to their children. The same method has been used in previous research and has found that preschoolers' depression severity sum scores are highly associated with a diagnosis of DSM-IV MDD (e.g., Belden & Luby, 2006; Luby et al., 2003a).

Preschoolers' maternal representations—Selected stories from the MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, Emde, & the MacArthur Narrative Working Group, 2003) were administered at baseline to measure preschoolers' internal representation of their mothers. The MSSB includes a wide array of emotionally charged story stems in which children narrate the remaining parts of the story until they develop a story ending. In the current study, two MSSB story stems related to themes of loss, sadness, and disappointment (i.e., Departure/Reunion, and Lost Dog); the Cancelled Visit story developed by Warren (2003); and one story stem (i.e., Stuffed Animal) developed in the EEDP lab with the collaboration of JoAnn Robinson, were administered at baseline.

Preschoolers' videotaped narratives responses were coded with the MacArthur Narrative Coding Manual (Robinson, Mantz-Simmons, MacFie, Kelsay, & the MacArthur Narrative Working Group, 2002). The specific codes that were used in the current analyses were based on the coding of parental representation in narratives a subsection of the above manual based on Oppenheim, Nir, Warren, & Emde (1997b). Of particular interest to the current investigation were the representations of caregivers (i.e., positive, negative, and disciplinary). Positive representations included those in which the child represented the caregiver as protective, helpful, affectionate, warm, or nurturing. Disciplinary representations were those in which the child represented the caregiver as an authority figure with control over the behavior of the child. Corporal punishment was coded as discipline as long as it was well regulated. Dysregulated disciplinary themes (e.g., severe beatings, verbal abuse) as well as ineffectual and abandoning parenting were coded as negative parental representations.

The presence or absence of the maternal representations in each of the four narratives was scored by a team of coders blind to diagnostic and psychosocial status. Based on previous research (Oppenheim et al., 1997a), all parental representations were coded in a present/absent fashion (given a score of 1 or 0, respectively). A team of coders obtained certification on scoring the MSSB through a series of training sessions and coding three "master" coded tapes to 90% reliability. The second author led monthly consensus conferences and served as the master coder, responsible for resolving discrepancies. Reliability was calculated on 26% of the narratives with Kappa coefficients of 91.5% for maternal representations. Calculating the mean number of representations in each category across all narratives created scores for children's overall representations of their mothers from the MSSB.

Parent – child waiting task

The parent – child waiting task (Carmichael-Olsen, Greenberg, & Slough, 1985) was conducted 1 year after the MSSB was administered. The waiting task creates a mildly stressful, emotionally evocative parent – child interaction by requiring children to wait 8 minutes before opening a brightly wrapped gift placed within arms reach on the table in front of them while their mothers completed several questionnaires. The waiting task provided observational data related to mothers' supportive and non-supportive caregiving strategies and emotion expressivity.

The current study observed caregivers' attempts to obtain behavioral compliance and emotion regulation in their children through the use of eight specific supportive (i.e., guidance, verbal assists, warmth/affection, emotion coaching, changing proximity, incorporating child in task, clear explanations, and engaging in mature conversation) or eight non-supportive caregiving strategies (i.e., ignoring, minimizing, criticizing, punitive/threatening, coercion/bribery, ambiguous demands, physical force, and yelling/mumbling negatively). For each 30 second interval of the 8 minute waiting task (16 total intervals were possible), the coder determined the presence of specific caregiving strategies. The classification of specific caregiving strategies as supportive or non-supportive and the specific behavioral descriptors were drawn from a modified version of the original waiting task coding manual (Carmichael-Olson, Greenberg, & Slough, 1985). That is, to better suit the interests and aims of the current study, modifications were made to several preexisting variables and several new variables were added (Belden, Luby, Kuebli, Blankenship, & Williams, 2006). Specifically, several parenting behaviors were added to the strategies to be coded, intervals of measurement were changed from 1 minute to 30 seconds, and several existing behavioral codes in the manual were re-written with more detail to increase the clarity of the behaviors being coded and to increased rater reliability.

For each 30 second interval of the waiting task, the coder rated the presence and/or absence of five positive (i.e., smiling, laughing, positive gestures, positive statements, and affection) and four negative emotion expressions (i.e., visibly irritated, increasing volume of voice, negative body movements, and affectively negative communication styles). Half of the emotion expressions coded reflected positive emotion while the remaining half of the behaviors reflected negative emotions. The total time of each observed parent – child interaction varied from dyad to dyad. Dyads averaged 14 intervals ($SD = 4.00$ intervals) during the task, ranging from the maximum of 16 to a minimum of 7. Over half of the mother – child dyads completed all 16 possible intervals. As the length of dyadic interaction increased, the opportunity for dyads to use a greater proportion of focal behaviors also increased. Therefore, all observed mother and child behaviors were summed and then divided by the total number of intervals coded within each interaction to create proportional variables.

Three research assistants were trained to reliability, and remained blind to preschoolers' diagnosis and other characteristics. The first author became reliable with both the coders on 20% of the videotaped interactions, which were chosen at random. Kappa coefficients ranged from 83% to 96% for each of the mother variables. Findings from Belden (2006), which used the same sample as the current study, indicated that the variables within the

coding manual for the waiting task had moderate to good psychometric properties. Specifically, Cronbach's alpha for supportive caregiving strategies was $\alpha = .86$, nonsupportive $\alpha = .84$, positive affect $\alpha = .71$, and negative affect $\alpha = .55$.

Results

Chi-square analyses of demographic characteristics were conducted to examine demographic differences between preschoolers' diagnostic group (see Table I). Results indicated a significant effect of age on preschoolers' diagnostic group status, $\chi^2 (4df) = 15.83, p < .01$. Specifically, the MDD group had a significantly higher proportion of 5-year-olds compared to the Healthy group, $\chi^2 (1df) = 6.92, p < .01$, and Disruptive group, $\chi^2 (1df) = 11.13, p < .01$. In addition, the Disruptive group had a significantly ($p < .01$) higher proportion of 3-year-old children than the MDD group but was not different from the Healthy group. There was no diagnostic group differences related to preschoolers' gender, ethnicity, maternal level of highest education achieved, or household income.

Descriptive statistics for the children's internal representations of their mothers as well as mothers' caregiving strategies are provided in Table II. In relation to preschoolers' representations of their mothers, females ($M = 1.23, SD = 1.22$) used significantly ($F = 3.80, p < .05$) more positive representations than preschool males ($M = .96, SD = .08$).

Diagnostic group status and preschoolers' internal representations of their mothers

A series of hierarchical regression analyses were conducted to test whether preschoolers' diagnostic group status accounted for a significant portion of the variance in preschoolers' positive, controlling, and/or disciplinary internal representations of their caregivers. In the first step of the equation, preschoolers' age and gender were entered as covariates. In the second step of the equations, three pairs of dummy coded group variables were entered (i.e., Healthy versus MDD, Healthy versus Disruptive disorder, and MDD versus Disruptive disorder) as predictor variables. Results indicated that after taking into account preschoolers' age and gender, their positive, negative, and discipline internal representations of their mothers did not differ significantly in relation to their diagnostic status.

Associations between depression severity and preschoolers' internal representations of caregivers

Pearson correlation coefficients were computed to provide a generalized understanding of the associations between mothers' reports of preschoolers' overall depression severity (i.e., the total sum of depressive symptoms) and preschoolers' narrative representations of their mothers' caregiving strategies during the baseline assessment. Results of the correlational analysis are presented in Table III and show that three out of the six correlations were statistically significant ($p < .05$). Specifically, preschoolers' depression severity scores at baseline were significantly associated with preschoolers' disciplinary and negative, but not positive maternal representations. Preschoolers' disciplinary and negative maternal representations were moderately correlated, but positive representations were not correlated with either disciplinary or negative maternal representations. Although the correlations were relatively weak, findings supported the hypothesis for two out of three of the representations;

depression severity was weakly and positively correlated with negative and disciplinary but not positive representations.

To further examine these associations, hierarchical regression analyses were conducted to test whether preschoolers' positive, disciplinary, and/or negative representations of their mothers were correlated with their depression severity after controlling for the effect of age as described above. Results indicated children's age, entered in the first step of the equation, accounted for a significant portion of the total variance in children's depression severity, $R^2_{adjusted} = .03$, $F(1, 268) = 8.73$, $p < .01$. Specifically, older children had significantly higher ($\beta = .18$, $p < .01$) depression severity scores. For the second step, children's representations for their mothers' positive, disciplinary, and negative caregiving were entered simultaneously into the equation. Findings indicated a significant change in the amount of variance accounted for after preschoolers' positive, controlling, and disciplinary representation scores were entered, $R^2 = .03$, $F_{change}(3, 265) = 2.65$, $p < .05$. Examination of the individual standardized beta coefficients indicated that preschoolers' age and negative representations of their mothers were the only variables that accounted for a significant portion of the total variance (i.e., $R^2_{adjusted} = .05$) in preschoolers' depression severity scores. Older preschoolers and preschoolers whose internal representations of their mothers were frequently negative had significantly, $p < .01$, higher depression severity scores. Preschoolers' positive and disciplinary representations of their mothers did not account for a significant proportion of the variance in preschoolers' depression severity scores when examined individually.

Preschoolers maternal representations and mothers' caregiving behaviors one year later

Correlation coefficients were computed among preschoolers' positive, disciplinary, and negative maternal representations at T1 and mothers' supportive and non-supportive caregiving strategies, as well as mothers' expressions of positive and negative affect observed at T2 (see Table IV). Results suggested that preschoolers who displayed positive maternal representations at baseline had mothers who were observed using more supportive care-giving strategies and positive affect during the dyadic interaction task observed 1 year later. Conversely, children's representations of mothers as disciplinary figures were associated with mothers' observed infrequent use of supportive caregiving strategies, more frequent use of nonsupportive caregiving strategies, as well as significantly fewer displays of positive affect. Last, preschoolers' negative maternal representations predicted mothers more frequent displays of negative affect during the dyadic task 1 year later.

Hierarchical multiple regression analyses were conducted to test which of the three internal representation scores at baseline (i.e., positive, negative, and/or disciplinary representations) was most predictive of maternal behaviors during the parent – child interaction task after controlling for the effect(s) of preschoolers' age and gender. To address this question age and gender were entered in the first step of the equation; in the second step, all three internal representation scores were entered simultaneously. The first analysis examined the expected associations between preschoolers representations of their mothers and mothers observed use of supportive caregiving strategies 1 year later. The first step of the analyses revealed an age effect on mothers' use of supportive caregiving strategies.

Specifically, mothers used supportive caregiving strategies more frequently with younger children ($\beta = -.21, p < .01$). Results from the second step of the equation indicated a significant change in the total amount of variance accounted for when maternal representations were entered into the equation $R^2 = .05, F_{change}(5, 216) = 4.45, p = .001$. When examining the overall contribution of each variable to the total variance accounted for in mothers' observed supportive caregiving, results indicated that younger children, preschoolers who more frequently represented their mothers as positive ($\beta = -.15, p < .05$), and who less frequently represented their mothers as disciplinarians ($\beta = -.17, p < .01$) had mothers who were observed using supportive caregiving strategies more frequently at T2. Together preschoolers' age and gender in addition to their positive, negative, and disciplinary maternal representations accounted for $R^2_{adjusted} = 7\%$ of the total variance in mothers' observed use of supportive caregiving strategies.

Hierarchical analysis was also used to test expected associations between preschoolers' internal representations of their mothers and their mothers observed nonsupportive caregiving strategies 1 year later. The first step of this analysis revealed no significant child age or gender differences in relation to mothers' observed use of nonsupportive caregiving strategies. In the second step preschoolers' T1 positive, negative, and disciplinary representations of their mothers were examined simultaneously as predictors of mothers' use of non-supportive caregiving strategies. Results indicated a significant change in the total variance accounted for in mothers' nonsupportive strategy scores, $R^2 = .04, F_{change}(5, 216) = 3.18, p = .03$. Preschoolers who at T1 infrequently represented their mothers' as positive and/or who frequently represented their mothers as disciplinarian had mothers who at T2 were observed using nonsupportive caregiving strategies more frequently.

Maternal representations and mothers' emotional expressions one year later

Two separate multiple regression analyses were conducted to examine whether preschoolers' positive, negative, or disciplinarian representations at T1 predicted the frequency of mothers' observed positive and/or negative affect expressions at T2 during the parent – child interaction task. In these analyses, gender and age were removed as covariates due to their especially low association with mothers' affective expressions. Results indicated that preschoolers' internal representations significantly predicted mothers' expressions of positive affect 1 year later, $R^2_{adjusted} = 0.24, F_{5,216} = 2.87, p < .05$. Specifically, preschoolers who displayed positive representations more frequently ($\beta = .14, p < .05$) and disciplinary representations less frequently ($\beta = -.14, p < .05$) had mothers who more frequently expressed positive affect. The three maternal representation scores did not account for a significant portion of the total variance in mothers' expressions of negative affect during the dyadic task.

Discussion

Current findings demonstrated that preschoolers' depression severity scores were significantly, but modestly, associated with their internal representations of their mothers' caregiving behaviors, as assessed by the MacArthur Story Stem technique. In particular, preschoolers with higher depression severity scores represented their mothers as more

negative and more often as having disciplinary style behaviors. These findings suggest an important association between early onset depression and young children's developing internal representations of their mothers' caregiving strategies. Importantly, the association between preschoolers' depression severity (based on maternal report) and preschoolers' internal representations of their mothers' caregiving (based on objectively rated story completions) emerged even at this very early stage of development. This finding suggests that depressive symptoms and potentially related aspects of mood states may have a material impact on the development of young children's experience and expectations of their primary relationships. However, in findings from Warren, Oppenheim, and Emde (1996), von Klitzing, Kelsey, Emde, Robinson, and Schmitz (2000), this study, as well as others, the direction of effect between depression severity and negative internal representations of caregiving remains unclear. Despite this, findings from the current study suggest that early onset depressive symptoms may have a tangible effect on key developmental processes during very early childhood. Children's internal expectations of mothers' caregiving strategies during the narrative task in relation to preschool onset MDD should not be regarded as benign or developmentally undifferentiable from other specific DSM-IV based internalizing and externalizing disorders in the preschool period. Current findings suggest that early onset depressive symptoms may play a unique and important role in shaping young children's view of their primary caregivers (or vice versa), refuting the assumption that expressions of preschoolers' emotion dysregulation (e.g., excessive feelings of sadness or guilt) should be viewed as transient and not worthy of developmental concern and attention.

Further underscoring the importance of early internal representations of caregivers in the context of depressive symptoms, analyses of the longitudinal data revealed that preschoolers' representations of their mothers' caregiving at baseline were significantly associated with mothers' observed supportive and nonsupportive caregiving behaviors as well as mothers' positive emotion expressivity during the parent – child interaction task that was conducted 1 year later. More specifically, preschool-age children's positive representations of their mothers during the narrative procedure predicted mothers more frequent use of supportive caregiving strategies and frequent expressions of positive affect 1 year later. Similarly, preschoolers' negative representations of their mothers at baseline predicted mothers' more frequent use of non-supportive caregiving strategies during the parent – child interaction task a year later. Previous results indicated that child representations of their mothers as disciplinarians were associated with fewer problems in the parent – child relationship (Oppenheim et al., 1997b). In contrast, findings from the current study indicated that mothers who were represented more frequently as controlling or as disciplinarians used supportive strategies and displayed positive affect *less* frequently. Despite the lack of convergence between results that future research can and should address, together both studies provide evidence that preschooler internal representations are associated with parenting behaviors that occur during parent – child interaction.

Current findings add to the empirical evidence for the utility of the MSSB narrative technique as a measure of young children's internal representations of the parent – child relationship. The current study extends this available database by addressing an important gap in the literature based on the use of a study sample containing a large group of preschool

children with DSM-IV MDD and Disruptive disorders. That is, despite the greater challenges of administering story stems to young children with clinical psychopathology as well as the unique narrative responses that may have been provided, results indicated that the MSSB was a useful method for assessing internal representations of mothers parenting behaviors in not only healthy, but also depressed, and disruptive preschoolers. Based on this, these data have important implications for the potential utility and future clinical application of the MSSB techniques. In this study, caregiver representations were significantly associated with dimensional depression severity scores, although no differences in MSSB responses were detected between categorical DSM-IV diagnostic groups. Importantly, however, as children's depression symptoms increased preschoolers' expectations of negative and controlling maternal behaviors evident during evocative story stems also increased. Along these lines, it could be useful to observe negative internal representations of parenting in children for whom a diagnosis has not yet been detected similarly to how projective tests may be used as one component of a comprehensive diagnostic assessment. Pragmatic issues such as the training required for the administration and coding of this tool in a clinical setting should be the focus of future measure development.

The finding that increasing depression severity was associated with more negative and disciplinary maternal representations is consistent with findings from prior observational studies. Similar to findings from Belden and Luby (2006), it is plausible that in the current study the significant association between depression severity and preschoolers' internal representations of their mothers' caregiving may be a result of mothers' actual use of effective and/or ineffective caregiving strategies during parent – child interactions. Because concurrent parent child interaction and story stem data were collected but not ready for analysis at the time of this writing, it was not possible to test this hypothesis. Findings from the current study through the use of the MSSB elucidated the perspective of the child in contrast to the majority of prior research on early onset psychopathology, which has been limited to the use of parent informants only. The child's perspective is key to understanding early internalizing disorders including but not limited to early onset depression. Further, the current study in addition to the previously established central importance of the parent – child relationship in the assessment and treatment of early onset psychopathology in general lends further support to the notion that the quality of maternal child relationship that also includes the perspective of the child should be an area of focus for both assessment and intervention in preschool depressive disorders.

Although no significant differences by categorical diagnostic group were found, there were a number of qualitative differences noted between preschoolers in the MDD group compared to the Healthy group. MDD preschoolers were observed to have more difficulty generating stories. In general, they needed more assistance and encouragement by the examiner to begin the story stems. Preschoolers in the MDD group did not brighten as much when the narratives were introduced, and they made more frequent requests to terminate the task and move on as compared to preschoolers in the Healthy group. Atypical responses among the MDD preschoolers included parental representations that were markedly violent (e.g., domestic abuse), parents being sent to jail, parents dying, or parents being permanently removed from the family structure (e.g., moving out of home). These qualitative observations are consistent with previous quantitative observational findings of atypical

types of themes in relation to serious behavioral problem in young children (von Klitzing et al., 2000; Warren et al., 1996).

Limitations of the study and directions for research

Measures of maternal depression and caregiving strategies were not included at baseline and MSSB data collected at later waves was not yet available for analyses at this time. Thus, it was not possible to examine whether preschoolers' internal representations of their mothers were associated with their mothers' current depressive symptoms and caregiving strategies and/or if mothers' baseline depression or caregiving strategies predicted children's later internal representations of their mothers. Oppenheim, Emde, and Warren (1997a) examined young children's representations of their mothers at baseline and 1 year later, and found that children's representations were relatively stable over time. Examining these variables simultaneously using longitudinal analytic techniques and multiple time points (i.e., more than two) could elucidate the pathways of association between preschoolers' internal representations and their mother's caregiving strategies.

A limitation of the current study is the absence of a language skills measure. Considering the clinical nature and very young age of children in this sample, it may have been beneficial to examine and ensure that children's responses to the narratives were not language skill dependent. However, the rigorous pre-screening methods that were completed before children were able to be included in the current study minimize this concern. Children with a known or suspected developmental delay that could have had an impact on their ability to respond to any one of the child report measures were excluded from the study.

Conclusion

In summary, this investigation addresses an important gap in the literature examining internalizing processes of very young children in relation to their depression severity. Using narrative techniques in a sample that included preschoolers with depressive and disruptive psychopathology and healthy controls, the results of this study suggest that the MSSB narrative technique may be useful for identifying and characterizing important negative internal experiences that differentiate preschoolers with high levels of depressive symptomatology. Several important questions for future research are raised by these study findings including a need for the investigation of the direction of effect between internal representations of parenting and depression severity among preschoolers and internal representations of parenting and later parenting behavior. However, despite this ambiguity, findings demonstrate the importance of early onset depressive symptoms in preschoolers' internal representations of their mothers' parenting strategies as well as the utility of the MSSB narrative technique to characterize the internal representations of young children with depressive psychopathology. Based on findings from the current study, the MSSB appears to be a useful and valid child-informant method for interpreting how depressed children internalize and represent the relationships they have with their primary caregivers. The fact that preschoolers' responses to the story stems were predictive of caregivers' future behaviors suggests that preschoolers' perceptions of their parents' behaviors may be remarkably accurate. This adds to the substantial body of literature validating the importance

of the emotional tone and level of support displayed by parents in early interactions with their preschoolers (e.g., Belden & Luby, 2006; Denham & Grout, 1999). Equally important is that the MSSB was a technique that produced objective observational data that identified these significant predictions. Overall, findings indicate that further research examining the utility of the MSSB in clinical populations and settings that evaluate and treat preschoolers with early onset mood disorders is warranted and worthwhile.

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Table I

Demographic characteristics of the study sample.

	Healthy (<i>n</i>)	Major depressive disorder (<i>n</i>)	Disruptive (<i>n</i>)
Child gender			
Male	71	45	28
Female	79	30	24
Child age (in years)			
3	45	17	23
4	71	27	21
5	34	31	8
Child race			
White	95	37	21
Black	47	29	27
Something else	9	12	11
Maternal education			
Some college	23	17	13
College degree (4 year)	87	46	33
Above college degree	40	12	7
Maternal marital status			
Married	99	36	29
Separated	3	5	1
Divorced/never married	46	33	23
Maternal income			
0 – \$20,000	30	20	17
\$20,000 – \$40,000	19	15	7
\$40,000 – \$60,000	24	13	8
\$60,000+	67	20	15

Table II

Descriptive statistics for study variables.

	<u>Healthy (n)</u>		<u>Major depressive disorder (n)</u>		<u>Disruptive (n)</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Maternal representations						
Positive	1.14	1.12	1.24	1.10	0.90	1.02
Negative	0.11	0.38	0.20	0.53	0.12	0.33
Disciplinarian	0.13	0.35	0.24	0.49	0.21	0.42
Parenting behaviors						
Support	10.56	6.14	9.60	5.94	10.00	6.17
Nonsupport	7.51	4.39	7.60	3.94	8.70	5.52
Positive affect	3.70	3.86	3.61	4.29	3.81	4.01
Negative affect	0.41	1.16	0.23	0.78	0.50	1.14

Table III

Intercorrelations examining preschooler's depression severity and maternal representations.

	1	2	3	4
Depression severity	–			
Positive representations	0.06	–		
Negative representations	0.14*	0.08	–	
Disciplinary representations	0.16*	0.05	0.40**	–

*
 $p < .05$;**
 $p < .01$.

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Relationships of preschooler's internal representations of parents and observed parenting behaviors one year later.

Table IV

	1	2	3	4	5	6	7
Positive representations	–						
Negative representations	0.06	–					
Disciplinary representations	0.04	0.33*	–				
Supportive	0.11*	–0.002	–0.16**	–			
Non-supportive	–0.10	0.006	0.16***	–0.69***	–		
Positive affect	0.15*	0.02	–0.12*	0.43***	–0.39***	–	
Negative affect	–0.02	0.13*	0.07	–0.08	0.30***	–0.10	–

* $p < .05$;

** $p < .01$;

*** $p < .001$.