

# The Efficacy of Toddler-Parent Psychotherapy for Fostering Cognitive Development in Offspring of Depressed Mothers

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The efficacy of Toddler-Parent Psychotherapy (TPP) as a preventive intervention for fostering cognitive development in the offspring of depressed mothers was evaluated. Mothers with major depressive disorder and their toddlers were randomly assigned to TPP ( $n = 43$ ) or to a nonintervention group ( $n = 54$ ) and compared to a control group ( $n = 61$ ) of women with no current or past mental disorder. At baseline (age 20 months), the groups did not differ on the Bayley Mental Development Index. At post-intervention follow-up (age 3 years), a relative decline in IQ was found in the depressed nonintervention group, whereas the depressed intervention and the normal control groups continued to be equivalent, with higher WPPSI-R Full Scale and Verbal IQs. The worst outcome was found among nonintervention children whose mothers had subsequent depressive episodes. The results confirm the developmental risks faced by offspring of depressed mothers and support the efficacy of the preventive intervention in safeguarding successful cognitive development in at-risk youngsters.

**KEY WORDS:** Cognitive development; maternal depression; prevention; toddler-parent psychotherapy.

The children of depressed mothers constitute a high-risk group of youngsters who are exposed to both intra- and extra-organismic factors that may interfere with normal developmental processes (Cicchetti, Rogosch, & Toth, 1997). Aberrations in biological, cognitive, socio-emotional, and representational developmental systems are present to varying degrees among individuals with mood disorders (*Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., American Psychiatric Association, 1994; Beck, 1967; Cicchetti & Toth, 1995, 1998; Jackson, 1986). Thus, the children of depressed mothers are exposed to sad and dysphoric affect, cognitive confusion, helplessness and hopelessness, and irritability (Abramson, Metalsky, & Alloy, 1989; American Psychiatric Association, 1994; Beck, 1967). The offspring of depressed women also are likely to experience the psychological unavailability of their mothers, especially during, but not restricted to, episodes of depression (Cummings & Cicchetti, 1990; Downey & Coyne, 1990; Lee & Gotlib,

1991; Weissman & Paykel, 1974). Furthermore, children of depressed mothers also are at heightened risk for a genetic vulnerability to depressive illness (Weissman, Warner, Wickramaratne, Moreau, & Olfson, 1997).

Depressed individuals generally become preoccupied with negative thoughts and affect and are unable to escape or modulate these sad or anhedonic patterns (Beck, 1967). Consequently, the caregiving environment provided by depressed mothers may eventuate in their offspring manifesting deviations in the normal organization of the relation between affect and cognition, displaying difficulties resolving stage-salient developmental tasks, and exhibiting future maladaptation (Beardslee, Versage, & Gladstone, 1998; Cicchetti & Aber, 1986; Cicchetti, Rogosch, Toth, & Spagnola, 1997; Cicchetti & Toth, 1995; Field, 1992; Murray, 1992). Because these impairments can occur in infancy, it is important to direct attention to the early developmental deviations that may be related to later appearing patterns of maladaptation, depression, and other forms of psychopathology.

A developmental perspective requires moving beyond identifying isolated aberrations in cognitive, affective, interpersonal, and biological correlates of depression. Rather, it becomes critical to understand how these various

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components have evolved developmentally and to comprehend how they are integrated within and across biological and psychological systems of the individual embedded within a multilevel social ecology. In adaptively functioning children, a coherent organization among diverse developmental systems is expected. In contrast, offspring of depressed mothers are at increased risk for either an incoherent organization among these developmental systems, or an organization of pathological structures—that is, a depressotypic organization (see Cicchetti & Toth, 1998 for an elaboration).

Depressotypic organizations, characterized by aberrations in psychological and biological systems that may be precursors of a depressive illness, may eventuate in depressive disorders across the life course. Toddlerhood may be a particularly vulnerable period for the formation of a depressotypic organization because many of the social, emotional, and cognitive competencies implicated in the development of later depressive disorder (e.g., the development of autonomy, the emergence of the affect of shame, and the construction of internal representational models of the self and of the self in relation to others) are at crucial stages of development. Although to date studies have not examined the emergence and evolution of a depressotypic organization over time, the plausibility of the model of depressotypic organization proffered is supported by data on the psychological and biological functioning in various developmental domains of the offspring of depressed parents, and by findings on the correlates of depression in children (Cicchetti & Toth, 1998). Given that the roots of depressotypic organizations may originate in infancy, prevention efforts that focus on early intervention with depressed mothers and their youngsters will be important for promoting a coherent developmental organization.

Offspring of depressed mothers are frequently confronted with interacting with a caregiver who has cognitive difficulties, including negative self-cognitions, concentration and memory impairments, and delayed information processing abilities (*DSM-IV*, American Psychiatric Association, 1994; Beck, 1967; Miller, 1975). Thus, it is not surprising that a number of investigations have been conducted to examine the impact that maternal depression has upon young children's cognitive development. Although not addressing maternal depression per se, Egeland and Sroufe (1981) examined the impact of maternal psychological unavailability on cognitive development in infants of economically disadvantaged mothers. Compared to infants of more psychologically available mothers from the same social class background, the infants with psychologically unavailable mothers manifested lower cognitive development on the Bayley Scales of Infant Development (Bayley, 1969) at 24 months. Notably, these

infants evidenced a drastic decline in Bayley developmental quotient from 9 to 24 months. Specifically, whereas the average mental score for infants with psychologically unavailable mothers was 121 at 9 months, it decreased dramatically to 83 at 24 months. These findings suggest that maternal psychological unavailability, frequently observed in depressed mothers, may have a substantial, deleterious impact on the course of normative developmental attainments.

In a socioeconomically disadvantaged sample of mothers with post-partum depression, Sharp and colleagues (1995) found that boys whose mothers were postnatally depressed evidenced lower cognitive functioning at age four years than that of boys with nondepressed mothers. Interestingly, Sharp *et al.* (1995) found that the presence of maternal depression in the first year of life was pivotal to these findings. (See also Cogill, Caplan, Alexandra, Robson, & Kumar, 1986). Maternal depression occurring later in the child's life did not appear to add to the cognitive differences, and later occurring maternal depression similarly had no independent effect.

In an investigation of a lower risk sample of varied social class, Murray (1992) found that at ages nine and eighteen months, infants of post-partum depressed mothers were more likely to fail Piaget's (1954) object permanence tasks. Boys in Murray's sample at 18 months appeared to be more strongly adversely affected by maternal depression, as evidenced by lower functioning on the Mental Development Index of the Bayley Scales of Infant Development (Bayley, 1969). This was particularly true for boys from families of lower social class. In contrast, girls did not evidence cognitive delays. Murray noted that her findings were maintained irrespective of current maternal depression; however, depression during the postpartum period was a critical determinant of these results. By age 5, Murray, Hipwell, Hooper, Stein, and Cooper (1996) determined that the effects of maternal depression no longer had an impact on cognitive development. Across Murray's findings, as with the work of Sharp *et al.* (1995) and Cogill *et al.* (1986), maternal depression occurring in the postpartum period, and not subsequently, has been described as being a "sensitive period" for the cognitive delays observed.

Thus, a number of investigations have found relations between maternal depression and relative cognitive deficits in offspring. Although some evidence has emphasized the significance of maternal depression during the postpartum period and found that cognitive impairments remit over time, other studies have found continued cognitive difficulties into the preschool years.

The role of preventive interventions in remediating the detrimental effects of maternal depression on the

cognitive development of offspring also has been examined. Cooper and Murray (1997) randomly assigned mothers with postpartum depression to one of four treatment groups, including nondirective counseling, cognitive-behavioral therapy, dynamic psychotherapy, and routine primary care. The interventions were conducted between the infants' ages of 8 to 18 weeks. No treatment group differences were found on cognitive functioning at 9 months, 18 months, or age 5 years. Similarly, Gelfand, Teti, Seiner, and Jameson (1996) implemented a home-visiting intervention for offspring of depressed mothers in a socioeconomically varied sample. Infants were between age 3 to 13 months at baseline, and reassessments occurred 10 months later. No effects of maternal depression on cognitive development were observed. Moreover, the intervention was not found to lead to cognitive differences at follow-up. In contrast, however, Lyons-Ruth, Connell, Grunebaum, and Botein (1990), in a socioeconomically disadvantaged sample, found a significant treatment effect for a home-visiting intervention among offspring of depressed mothers. Eighteen-month-old children of depressed mothers who had not taken part in the preventive intervention obtained Mental Development Index scores on the Bayley Scales of Infant Development that were 10 points lower than those toddlers whose mothers participated in the intervention.

Consequently, there is some indication that preventive interventions can be effective in safeguarding the cognitive development of offspring of depressed mothers. However, the findings regarding the impact of preventive interventions on cognitive development are too preliminary to make definitive statements about the relative effectiveness of interventions based on social class, type of preventive intervention strategy, or features of maternal depression (i.e., postpartum versus recurrent major depressive disorder). In the current investigation, the impact of a preventive intervention, Toddler-Parent Psychotherapy (TPP; Lieberman, 1991, 1992), on the course of cognitive development in toddlers from middle socioeconomic backgrounds whose mothers had experienced major depressive disorder prior to the child's age of 18 months was examined.

Toddler-Parent Psychotherapy is a nondidactic form of intervention involving conjoint sessions of the mother and child with a therapist, which seeks to foster improvement in the mother-child relationship and communication and seeks to enhance positive mother-child interaction and maternal affective attunement and responsivity to the child. These objectives of TPP are designed to facilitate competent resolution of stage-salient tasks of development, thereby decreasing the probability of a depressotypic organization occurring. In a prior study that

included a subsample of the current participants, Cicchetti, Toth, and Rogosch (1999) found that TPP was effective in promoting higher rates of secure attachment organization among toddlers of depressed mothers. During the toddler period, the emergence of self-awareness and the development of symbolic representation and further self-other differentiation also are central issues (Cicchetti & Schneider-Rosen, 1986). Through facilitating communication and expressiveness between mother and child and optimizing the emotional quality of the mother-child relationship, the intervention was expected to enhance children's competent resolution of early stage-salient tasks. Competent development during toddlerhood results in a positive emerging self in which children are more autonomous and free to explore and engage their environment. Such children also are more likely to have greater facility in the expression of their internal experience (see Cicchetti & Schneider-Rosen, 1986). Thus, by enhancing these features of development through participation in TPP, it was expected that children in the intervention also would evidence higher levels of cognitive development than children of depressed mothers who did not participate in the preventive intervention. (Details of the parameters of the intervention are provided in the *Procedures* section of the *Method*).

The following hypotheses were advanced:

1. At baseline, toddlers of depressed mothers were expected to evidence lower level cognitive functioning as compared to demographically comparable toddlers of mothers without a history of current or past depression or other psychiatric disorder. Toddlers of depressed mothers randomized to the preventive intervention group versus no intervention group were not hypothesized to differ in level of cognitive functioning.
2. Following the completion of the Toddler-Parent Psychotherapy preventive intervention at age 3, toddlers of depressed mothers taking part in TPP were expected to exhibit relatively higher cognitive functioning than toddlers of depressed mothers not receiving the intervention. The 3-year-olds in the nonintervention group were hypothesized to have lower cognitive attainment than the normative comparison group of children of nondepressed mothers, whereas children of depressed mothers receiving the intervention were not expected to differ from the normative group.

A number of exploratory analyses were conducted to address additional research questions. Specifically, given findings discussed above regarding worse cognitive outcomes for boys, possible gender influences on treatment

effectiveness were examined. Similarly, despite the extant findings suggesting that depression that occurs in the postpartum period is a significant contributor to the cognitive deficits observed in the offspring of depressed mothers, the impact of ongoing depression in the mothers on children's cognitive functioning was examined, as were potential effects of maternal co-morbid diagnoses. Variables related to potential differences in the degree of cognitive stimulation a child might receive also were examined. Finally, the extent to which differences in treatment length may have influenced the cognitive advances of children in the intervention group was examined.

## METHOD

### Participants

Participants in this investigation were recruited for a longitudinal study designed to evaluate the efficacy of a preventive intervention for toddlers of depressed mothers and to examine the effects of maternal depression on child development. The present sample included 158 mothers and their toddlers (81 boys and 77 girls) who completed both baseline and post-intervention follow-up assessments. At baseline, the toddlers averaged 20.47 months of age ( $SD = 2.49$ ). Ninety-seven of the toddlers had mothers with a history of major depression that minimally had involved a major depressive episode occurring at some time since the toddler had been born. The remaining 61 children had mothers with no current or prior history of major psychiatric disorder. Maternal age ranged from 22 to 41 years ( $M = 31.62$ ,  $SD = 4.51$ ).

### Participant Recruitment

In order to minimize co-occurring risk factors that may accompany parental depression (Campbell, Cohn, Flanagan, & Popper, 1992; Downey & Coyne, 1990), families of nonlow socioeconomic status were recruited. Specifically, parents were required to have at least a high school education, and families could not be reliant on public assistance. A community sample of mothers with a history of depressive disorder was recruited through referrals from mental health professionals and through notices placed in newspapers, community publications, medical offices, and on community bulletin boards. In addition to having a child approximately 18 months of age, diagnostic inclusion criteria for mothers in the depressed groups required mothers to meet *Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R*, American Psychiatric Association, 1987) criteria for major depression occur-

ring at some period since the birth of their toddlers. The depressed mothers also had to be willing to accept random assignment to either the intervention or the nonintervention group following completion of baseline assessments. Among depressed mothers in the current report ( $N = 97$ ), 92.8% had been depressed during the postpartum period. Only 12.4% had been depressed exclusively in the postpartum period.

For the control group of mothers without a history of psychiatric disorder, participants were recruited directly by contacting families living in the vicinity of the families of depressed mothers. Names of potential families with a toddler of the targeted age were obtained from birth records. In addition to the same demographic characteristics as required for families with depressed mothers, the control group mothers were screened for the presence or history of major psychiatric disorder using the Diagnostic Interview Schedule III-R (DIS-III-R; Robins *et al.*, 1985) and only mothers without a history of major psychiatric disorder were retained. Thus, this control group constitutes a "super normal" comparison group, given the prevalence of psychological disturbance in the general population.

The participants in the depressed intervention (DI), depressed control (DC), and nondepressed control (NC) groups in the current report ( $N = 158$ ) were comparable on a range of basic demographic characteristics. Mothers were predominantly Caucasian (92.4%), and minority representation did not differ across groups. Maternal education also was comparable across groups. Overall, 53.8% of the mothers were college graduates or had received advanced degrees. Family socioeconomic status based on Hollingshead's (1975) four-factor index also was consistent across groups. Overall, 73.4% were ranked in the two highest socioeconomic status levels (IV and V). Although the age of the toddlers was equivalent across groups, a minor difference in maternal age was found ( $F(2, 155) = 3.07$ ,  $p < .05$ ). Tukey post-hoc tests indicated that the mothers in the DC group were somewhat younger ( $M = 30.46$ ,  $SD = 4.82$ ) than mothers in the NC group ( $M = 32.51$ ,  $SD = 3.96$ ). Neither group differed from the DI group ( $M = 31.81$ ,  $SD = 4.64$ ). Although the majority of mothers in all groups were married, not surprisingly, the rate of marital instability at baseline was higher in the two depressed groups ( $X^2(2) = 10.98$ ,  $p = .004$ ). The percentage of mothers in the DI and DC groups, respectively, who were married was 81.4% and 79.6%, contrasting with 98.4% in the NC group. By postintervention follow-up, there were no new cases of separation/divorce in the DI or DC groups; two mothers in the NC group separated from their spouses by the follow-up period. The groups also were equivalent

in terms of the number of children in the family ( $M = 1.96$ ,  $SD = 1.11$ ), the percent of the toddlers who were in childcare (48.1%), and whether mothers were working (61.4%).

Finally, as expected, in addition to the diagnostic differences between the DI and DC versus NC groups, the current level of depressive symptoms as measured by the Beck Depression Inventory (BDI) was higher in the DI ( $M = 15.30$ ,  $SD = 9.22$ ) and DC ( $M = 17.33$ ,  $SD = 9.28$ ) than in the NC group ( $M = 2.42$ ,  $SD = 3.04$ ) ( $F(2, 155) = 66.34$ ,  $p < .0001$ ). The DI (76.7%) and DC (77.8%) groups both evidenced a high rate of comorbidity with other psychiatric disorders (including, for example, anxiety disorders, posttraumatic stress disorder, obsessive-compulsive disorder, bulimia, and substance use disorders), but these rates were equivalent for the two groups. The DI and DC groups also were equivalent in terms of the percent who were depressed exclusively in the post-partum period (DI = 14.0%, DC = 11.1%), those who were not depressed in the post-partum period (DI = 7.0%, DC = 7.4%), and those who had a subsequent depressive episode in the period between baseline and follow-up assessments (DI = 27.9%, DC = 33.3%).

## Procedures

At baseline, families participating in the investigation took part in a series of home- and laboratory-based assessment sessions. During an initial home-based session, mothers were administered the DIS-III-R, and completed the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and a demographics interview. Families meeting research criteria were retained in the sample. In a subsequent laboratory session, a cognitive assessment was conducted with the toddlers, with their mothers present, by an experimenter unaware of experimental hypotheses and the diagnostic and intervention status of participants in the study.

Upon completion of the baseline research sessions, families with depressed mothers were randomly assigned to the DI ( $n = 64$ ) and DC ( $n = 62$ ) groups. Among the families randomly assigned to the DI group, 5 declined to participate in the intervention, 5 discontinued the intervention prematurely, and 3 attended too few sessions over the course of the intervention to meet criteria for completing the intervention. These families were not included in further analyses. Additionally, a number of families in each of the groups (DI:  $n = 8$ ; DC:  $n = 8$ ; and NC:  $n = 4$ ) ended participation in the study prior to the completion of the postintervention assessments at age 3, primarily because of moving away from the area (DI, DC, and NC

moved). The current report is based on the following group sizes for families who completed respective baseline and postintervention research measures: DI:  $n = 43$  (22 boys, 21 girls); DC:  $n = 54$  (27 boys, 27 girls); and NC:  $n = 61$  (32 boys, 29 girls).

To examine potential differences related to attrition, the following five groups of depressed mothers were examined: DI ( $n = 43$ ), DI noncompliers ( $n = 13$ ), DI moved ( $n = 8$ ), DC ( $n = 54$ ), and DC moved ( $n = 8$ ) in a series of analyses of variance. In terms of demographic characteristics, no significant group differences were found for toddler age, maternal age, maternal education, paternal education, family income, or number of children in the family. Chi-square analyses revealed no significant demographic differences for child gender, whether the child was in daycare, maternal race, and family socioeconomic status level. The groups of mothers also were equivalent in terms of their baseline BDI scores and rate of co-morbid psychiatric diagnoses. Finally, no significant group differences were found among the five depressed groups on the baseline Bayley Mental Development Index scores.

Postintervention assessments occurred subsequent to the child turning age 3 when the DI group completed the course of intervention. Mothers again completed the DIS-III-R, demographics interview, and BDI; children were administered a cognitive assessment (Wechsler Preschool and Primary Scales of Intelligence—Revised, Wechsler, 1989).

## Preventive Intervention

Toddler-Parent Psychotherapy is an intervention based on attachment theory that is derived from the work of Fraiberg (Fraiberg, Adelson, & Shapiro, 1975; Lieberman, 1991). The intervention is designed to address how mothers' internal representational models of attachment relationships are enacted in the relationship with their toddlers. It is theorized that, through the provision of a corrective emotional experience in the context of the therapeutic relationship, mothers are assisted in altering insecure internal representational models of their attachment relationship with their child or of maintaining positive models, improving communication and interaction with their toddlers, and expanding their understanding of and response to their child's behavior and to their child's affective communication (Fraiberg *et al.*, 1975; Lieberman, 1991, 1992). In addition to fostering or safeguarding a secure mother-child attachment relationship, positive mother-child interaction was expected to facilitate functioning across various developmental domains, including

that of cognitive development. Specifically, it was expected that mothers who interacted with their offspring more often and more positively would be more likely to engage their child in activities that fostered cognitive development. In fact, Fraiberg's early work (Fraiberg, 1977) demonstrated that mothers could be helped to encourage their congenitally blind infants to utilize alternative developmental pathways to positive adaptation, thereby enabling mothers to engage with their infants in emotionally rewarding ways.

The overarching framework of TPP strives to enhance adaptive mother-child interaction by creating a relational context that facilitates the toddler's self-development. By fostering positive affective expression and communication between mother and child and by helping mothers achieve accurate developmental expectations for their child, TPP targets the formation of a stronger and more positive relationship. The improved mother-child relationship results in the development of child self-efficacy, and child confidence in exploring the environment is promoted, contributing to developmentally normative gains in cognitive development.

During sessions, in which mothers and toddlers were seen conjointly by a master's or Ph.D. level therapist in weekly meetings, mothers were encouraged to interact with their toddlers as they typically do. Naturally occurring events, such as (but not limited to) child tantrums, avoidance of mother, or resistance to mother's bids to play, provided the therapist with opportunities to address maternal affective responses and understanding of child behavior. Similarly, positive interactions between mothers and toddlers also were explored, thereby facilitating the continuance of such interchanges. Because development is so rapid in the early years of life, the inclusion of toddlers in sessions provided therapists with the opportunity to help mothers recognize and participate in their child's developmental achievements. Frequently, mother-child interaction resulted in mothers' reflecting on their own early experiences, allowing the therapist to provide linkages between current maternal caregiving and historical factors contributing to maternal behavior.

Exploration of maternal feelings in response to various child behaviors, maternal interpretations of such behaviors, and how child behaviors and maternal reactions relate to other experiences in the mother's life provide direction for the formulation of TPP goals. At the representational level, the therapist evaluates the extent to which mothers project their own concerns, expectations, and anticipations onto their offspring. Maternal reactions to toddler-therapist interaction also provide information that is incorporated into sessions. For example, if the mother is jealous of attention directed toward the toddler,

then maternal awareness of this issue is fostered over the course of therapy.

Mothers and toddlers who had been randomly assigned to the DI group participated in toddler-parent psychotherapy (TPP) sessions from the completion of baseline assessments to the child's age of 3. The length of the intervention period averaged 57.7 weeks ( $SD = 9.81$ ), and ranged from 41.7 to 78.9 weeks. The mean number of intervention sessions conducted was 45.6 ( $SD = 11.38$ , range: 30–75).

In the current intervention, fidelity of TPP was monitored through weekly individual supervision, weekly group presentations and discussions of videotaped cases, and monthly monitoring of videotaped sessions for each case by the senior author, who was not providing supervision for the intervention therapists and therefore was able to assess adherence to the parameters of the intervention objectively. A checklist was utilized to assess therapist compliance with the parameters of the intervention, including, for example, facilitating mother-child interaction, addressing maternal representations of child and others, and providing developmental guidance as needed. Additionally, therapist adherence to not didactically instructing mothers was monitored. If any concerns emerged, then they were brought to the immediate attention of the therapist's supervisor.

## Measures

### *Diagnostic Interview Schedule III-R (DIS-III-R)* (Robins et al., 1985)

The Diagnostic Interview Schedule, a structured psychiatric interview schedule, has undergone extensive development and reliability and validity studies for use in psychiatric epidemiological field (Epidemiological Catchment Area (ECA) studies. The DIS-III-R version of the DIS, corresponding to the diagnostic criteria specified in version 3R of the *DSM-III-R* (American Psychiatric Association, 1987) was used in this investigation. The interview is administered in a standard interview sequence with a highly structured format, and thus interviewers who do not possess a high level of clinical training may administer the DIS. Questions are answered on a yes or no basis in order that sensitive clinical judgments regarding probing or determination of clinical symptoms are not required. The DIS assesses the symptom criteria for presence of adult psychiatric disorders, allowing for assignment of 49 *DSM-III-R* diagnoses. All interviewers were trained to criterion reliability in the administration of the DIS and computer generated diagnoses were utilized.

*Beck Depression Inventory (BDI; Beck et al., 1961)*

The BDI is an extensively used 21-item self-report measure that assesses current affective, cognitive, motivational, and physiological symptoms of depression. Each item includes four self-evaluative statements that are scored from 0 to 3, with 3 indicating the most intense symptom. The BDI has been found to correlate with psychiatric ratings of depression in both psychiatric and student samples (Beck, Steer, & Garbin, 1988; Bumberry, Oliver, & McClure, 1978). Test-retest stabilities of the BDI have been reported to range from 0.48 to 0.86 among psychiatric patients and from 0.60 to 0.83 among nonpsychiatric subjects (Beck *et al.*, 1988). Cut-off scores have been established, with 0–9 reflecting no or minimal depression, 10–18 reflecting mild to moderate depression, 19–29 reflecting moderate to severe depression, and 30–63 reflecting severe depression (Beck *et al.*, 1988).

*Bayley Scales of Infant Development (BSID; Bayley, 1969)*

The Bayley Scales of Infant Development (Bayley, 1969) are intended for use with infants and toddlers up to 30 months of age. The Bayley assesses developmental level in cognitive and motor areas. Items of increasing difficulty are arranged chronologically. For example, mental scale items at approximately the 18-month level include placing pegs in a pegboard, naming objects, imitating a crayon stroke, and similar age-appropriate behaviors. For purposes of this investigation, only the Bayley Mental Development Index (MDI) was utilized. The Bayley MDI has been used by many investigators to provide estimates of infant and toddler cognitive developmental level. Bayley's 1969 data indicate an average correlation between the Bayley MDI and the Stanford-Binet (Form L-M) IQ scores of 0.57 for a sample of 120 children aged 24 to 30 months.

*Wechsler Preschool and Primary Scales of Intelligence—Revised (WPPSI-R; Wechsler, 1989)*

The WPPSI-R is an individually administered clinical measure for assessing intelligence in children age 3 to 7. The WPPSI-R measures diverse cognitive abilities thought to reflect different aspects of intelligence. The WPPSI-R is organized into Verbal and Performance (primarily perceptual-motor) scales, yielding a Verbal IQ, Performance IQ, and a combined Full Scale IQ. Four Verbal subtests (Information, Comprehension, Vocabulary, Similarities) and four Performance subtests (Geometric Design, Block Design, Mazes, Picture Completion) were

administered. Split-half reliability coefficients for 3-year-olds range from 0.83 to 0.90 across these subtests and is 0.87 for Full Scale IQ. Test-retest stability correlations for the three IQ scores range from 0.88 to 0.91. WPPSI Full Scale IQ has been shown to correlate substantially ( $r = .75$ ) with the Stanford-Binet (Form L-M; Wechsler, 1989).

Although the Bayley and the WPPSI-R do not assess exactly the same cognitive functions, each instrument measures cognitive processes relevant to the respective developmental periods in which they are used. Moreover, by age 18 months, the Bayley increasingly taps higher level cognitive functions including comprehension, memory, problem-solving, and verbal skills, and thus is increasingly more consistent with skills assessed by the WPPSI-R. In the current sample, baseline Bayley MDI scores and age 3 WPPSI-R Full Scale IQ scores were correlated ( $r = .60$ ), attesting to continuity in the cognitive functions measured over approximately 1½ years.

**RESULTS****Cognitive Functioning at Baseline and at Post-Intervention Follow-Up**

In order to compare individual differences in cognitive development between groups at baseline, an analysis of variance (ANOVA) was conducted on baseline MDI scores from the Bayley, with group and child gender as independent variables. No between group differences were found for the depressed intervention (DI), depressed control (DC), and nondepressed control (NC) groups for the MDI scores ( $F(2, 152) = .24, p = .78$ ). (See Table I). A significant gender effect was found ( $F(1, 152) = 16.17, p < .001$ ), with girls obtaining higher MDI scores ( $M = 116.36, SD = 17.62$ ) than boys ( $M = 105.25, SD = 17.05$ ). However, the group X gender interaction was not significant ( $F(2, 152) = .95, ns$ ). Thus, at baseline, the toddlers in the three experimental groups were equivalent in terms of their levels of cognitive functioning.

To examine potential differences in cognitive functioning at postintervention follow-up at age 36 months, an analysis of covariance (ANCOVA) was conducted, with group and gender as the independent variables, controlling for baseline Bayley MDI scores. In examining WPPSI-R Full Scale IQ as the dependent variable, covaried Bayley MDI scores evidenced a strong relation to Full Scale IQ ( $F(1, 151) = 88.60, p < .001$ ). Given the strong relation between gender and baseline MDI scores, no gender effect emerged. However, a significant group effect was found ( $F(2, 151) = 4.95, p = .008$ ). Planned comparisons

**Table I.** Pre- and Post-Intervention Group Comparisons for Toddlers' Cognitive Functioning

	1. Depressed Intervention (DI) <i>M(SD)</i> <i>n</i> = 43	2. Depressed Control (DC) <i>M(SD)</i> <i>n</i> = 54	3. Non Depressed Control (NC) <i>M(SD)</i> <i>n</i> = 61	<i>F</i>	( <i>df</i> )	<i>p</i>	A priori contrast
BSID							
Mental Development Index (MDI)	111.12 (16.68)	109.48 (18.73)	111.39 (18.78)	.24	(2,152)	.78	—
WPPSI-R							
Full Scale IQ (FIQ)	107.09 (13.43)	100.78 (12.54)	107.41 (13.93)	4.23	(2,151)	.008	1, 3 > 2
Verbal IQ (VIQ)	104.21 (14.85)	97.50 (12.37)	103.70 (15.06)	3.84	(2,149)	.024	1, 3 > 2
Performance IQ (PIQ)	108.67 (14.49)	103.75 (15.67)	109.49 (13.84)	2.32	(2,149)	.10	—
Discrepancy score Z Score FIQ—Z Score MDI	.14 (.83)	-.21 (.92)	.15 (.86)	3.05	(2,155)	.05	1, 3 > 2

indicated that hypothesized differences among the groups were confirmed. The DI and the NC group did not differ ( $t(155) = .91, p = .91$ ). In contrast, the DC group was found to have lower Full Scale IQ scores ( $M = 100.78, SD = 12.54$ ) than the NC groups ( $t(155) = 2.66, p = .009; M = 107.41, SD = 13.93$ ) and the DI group ( $t(155) = 2.32, p = .022; M = 107.09, SD = 13.43$ ). The interaction of group and gender ( $F(2, 151) = .14, ns.$ ) was not significant. The significant group effect was maintained when maternal age was included in the ANCOVA to control for baseline group differences on this variable.

A difference score between the standardized WPPSI-R Full Scale IQ and the standardized Bayley MDI score also was computed to examine change between baseline and the end of the intervention. The ANOVA to contrast groups on the difference scores was significant ( $F(2, 155) = 3.05, p = .05$ ). Again, hypotheses regarding group differences in changes from baseline to postintervention were confirmed. Specifically, a priori contrasts revealed that the difference scores for the DI and NC groups did not differ ( $t(155) = .04, p = .97$ ), whereas the difference scores for the DC group ( $M = -.22, SD = .92$ ) evidenced a decrease relative to the NC group ( $t(155) = 2.24, p = .027; M = .14, SD = .83$ ) and the DI group ( $t(155) = 2.01, p = .047; M = .15, SD = .86$ ).

The above group differences were examined in further detail by contrasting group differences on both the Verbal and the Performance scales. In terms of Verbal IQ, the same ANCOVA procedure controlling for baseline MDI scores revealed a significant difference among the groups ( $F(2, 149) = 3.84, p = .024$ ). The gender and group X gender effects were not significant ( $F(1, 149) = .05, ns; F(2, 149) = .60, ns.$ ). A priori comparisons indicated that the DI and NC groups did not differ in Verbal

IQ scores ( $t(155) = .18, p = .86$ ). In contrast, the DC group was found to have lower Verbal IQ scores ( $M = 97.5, SD = 12.37$ ) than the NC group ( $t(153) = 2.32, p = .022; M = 103.70, SD = 15.06$ ) and the DI group ( $t(155) = 2.30, p = .023; M = 104.21, SD = 14.85$ ).

When Performance IQ scores were examined in the ANCOVA, a marginal group effect was obtained ( $F(2, 149) = 2.29, p = .10$ ). The gender and group X gender effects were not significant ( $F(1, 149) = .34, ns; F(2, 149) = 1.11, ns.$ ). The pattern of group differences was similar to that found for Verbal IQ scores (DI:  $M = 108.67, SD = 14.49$ ; DC:  $M = 103.75, SD = 15.67$ ; NC:  $M = 109.49, SD = 13.84$ ).

### Factors Potentially Influencing Intervention Effects

Additional factors that could potentially account for the intervention effects also were examined. In terms of maternal education, the variable of years of maternal education was found to correlate significantly with Bayley and WPPSI-R scores, with higher maternal education associated with higher cognitive abilities in the child. Nevertheless, years of maternal education did not differ between the three depression groups ( $F(2, 157) = 2.33, p = .42$ ). When maternal education was entered as a covariate in an ANCOVA to examine WPPSI-R Full IQ at 36 months, the intervention group main effect remained significant ( $F(2, 157) = 6.02, p = .003$ ), indicating that maternal education did not account for the cognitive outcome differences observed at 36 months.

The issue of whether the effects of subsequent depressive episodes among mothers in the DI and DC groups affected cognitive outcomes also was examined. Specifically, the effect on children's cognitive outcomes of

mothers having a major depressive episode during the period between baseline and postintervention follow-up was evaluated. Comparing the DI and DC groups, there were no group differences in terms of the rate of recurring depressive episodes, with 27.9% of mothers in the DI group and 33.3% of mothers in the DC group experiencing subsequent depressive episodes ( $X^2(1) = .33, p = .57$ ). Presence or absence of subsequent depressive episodes was used as an additional dependent variable along with depression group in ANCOVAs to examine cognitive functioning, controlling for baseline Bayley MDI scores. No significant effects were found for Performance IQ. However, a significant group effect was found for Full IQ scores ( $F(1, 92) = 6.50, p = .012$ ), as well as a marginally significant interaction effect ( $F(1, 92) = 3.15, p = .08$ ). For Verbal IQ, the main effect for group was again obtained ( $F(1, 90) = 6.12, p = .015$ ), as well as a significant interaction of group and depressive episode ( $F(1, 90) = 3.92, p = .05$ ). These results are shown in Table II. For both Full Scale IQ and Verbal IQ, the group means suggest that the children in the DC group who had mothers with subsequent depressive episodes had the lowest cognitive functioning scores. In contrast, children in the DI group maintained higher cognitive functioning whether or not their mothers had subsequent depressive episodes. These effects were maintained when gender also was in-

cluded as a covariate along with baseline Bayley MDI scores.

Additionally, the same ANCOVA analyses were conducted to examine whether the presence or absence of co-morbid diagnoses in the depressed mothers influenced cognitive outcomes for the DI and DC groups. No main effects of co-morbid status or interactions of co-morbid status and group were found for Full Scale, Verbal, or Performance IQs. Similarly, family variables that might influence the amount of stimulation a child receives were examined. Specifically, whether or not mothers were married (a proxy for father involvement), presence or absence of siblings, whether the toddler was in day care, and mother's work status (working or not) were each evaluated in the ANCOVA procedures to examine their role in relating to the differential cognitive outcomes for the DI and DC groups. Again, no significant main effects of respective variables or their interactions with depression group were found for Full Scale, Verbal, or Performance IQs.

Finally, given that the mothers' participation in intervention varied in terms of the length of treatment and number of sessions conducted, the extent to which this variation influenced child cognitive outcomes was examined. Specifically, correlations between the difference in standardized WPPSI-R Full Scale IQ and Bayley MDI scores and length of treatment ( $r = -.08$ ) and the number

**Table II.** Effects of Subsequent Depressive Episode on Cognitive Functioning in Depressed Intervention and Depressed Control Groups

WPPSI-R	Subsequent depressive episode			F(1, 92)	p
	No M(SD) (n = 67)	Yes M(SD) (n = 30)			
Full Scale IQ					
Depressed Intervention (DI) (n = 43)	106.00 (13.0)	109.92 (14.6)	Group <sup>a</sup>	6.50	.028
			Episode	.69	.41
Depressed Control (DC) (n = 54)	102.56 (13.1)	97.22 (10.8)	Interaction	3.15	.08
Performance IQ					
Depressed Intervention (DI)	107.77 (14.6)	111.00 (14.6)	Group <sup>a</sup>	2.32	.13
			Episode	.02	.90
Depressed Control (DC)	104.54 (16.9)	102.12 (13.1)	Interaction	.59	.44
Verbal IQ					
Depressed Intervention (DI)	103.00 (12.0)	107.33 (20.8)	Group <sup>a</sup>	6.12	.015
			Episode	.91	.34
Depressed Control (DC)	99.80 (12.4)	92.76 (11.6)	Interaction	3.92	.05

<sup>a</sup>Controlling for baseline Bayley MDI.

of sessions conducted were examined ( $r = .14$ ). Neither of these correlations was significant, suggesting that the efficacy of the intervention was not influenced by variation in these treatment parameters.

## DISCUSSION

In this investigation, at baseline there were no differences in the cognitive functioning in the DI, DC, and NC groups; these findings attest to the effectiveness of the randomization procedure for the two depressed groups. The fact that the two depressed groups were not different from the NC group at baseline contrasts with the findings of other investigators (e.g., Lyons-Ruth *et al.*, 1990; Murray, 1992) who noted lower cognitive functioning at age 18 months for offspring of depressed mothers of low or varied socioeconomic status. The absence of differences at baseline argues against "sensitive period" conceptualizations of cognitive development. In the present investigation, the effects of maternal depression on toddler cognitive functioning may have been mitigated in this relatively advantaged sample.

In contrast, differences in cognitive functioning were obtained at age 3. The depressed control group diverged from the normal comparison group, and evidenced a relative decline in age-expected cognitive skills. At age 3, intelligence increasingly becomes more symbolic and representational in nature, and it appears that children of depressed mothers, in the absence of intervention, do not make the same advances as children whose mothers are not depressed.

A different picture emerged when the cognitive functioning of children of depressed mothers who participated in the intervention was examined. At age 3, these children were indistinguishable from the nondepressed comparison group, and thus had maintained a normative pattern of cognitive advance. Although not different at baseline, at age 3 the intervention group evidenced higher cognitive abilities than that observed in the group of children of depressed mothers who did not participate in the preventive intervention.

In addition to the findings of overall differences in IQ, the strongest differences emerged for verbal intelligence. Children of depressed mothers who took part in the intervention and the children of nondepressed mothers evidenced higher overall verbal IQ, relative to the children of depressed mothers who were not in the intervention. Thus, normative developmental gains in verbal skills appeared to be particularly promoted among children in the intervention group.

Toddler-Parent Psychotherapy, thus, was found to be effective in safeguarding the normative advance of cognitive development in young offspring of depressed mothers, and, in the absence of intervention, relative deficits in a comparable group of offspring were found. Other researchers have noted a number of features of depressed mothers that have been linked to lower cognitive development in their children. For example, Kaplan, Bachorowski, and Zarlengo-Strouse (1999), in an investigation of a low-risk sample, found that child-directed speech segments produced by mothers with high levels of depressive symptomatology did not promote associative learning in 4-month-old infants. Relatedly, in 9-month-old infants of postpartum depressed mothers, Murray, Kempton, Wolgar, and Hooper (1993) noted lower infant-focused speech and higher self-focused speech among these mothers; less infant-focused speech observed was related to lower Bayley scores at 18 months. Moreover, maternal insensitivity to the infant's experience and poor engagement of infants in active communication were related to poor performance on object permanence tasks and assessments of more general cognitive functioning (Murray, Fiori-Cowley, Hooper, & Cooper, 1996; Murray *et al.*, 1993). Depressed mothers also have been shown to make more negative attributions about their child, particularly in regard to the child's negative emotions (Radke-Yarrow, Belmont, Nottelmann, & Bottomly, 1990). Further, high correspondence in affective tone for mothers' and children's attributions has been noted. Thus, children's self-attributions have been found to mirror negative self-attributions of their depressed mothers (Radke-Yarrow *et al.*, 1990).

Through its focus on the mother-child relationship and enhancement of mother-child communication and positive affect expression, Toddler-Parent Psychotherapy addresses some of the very features of depressed mother-child interaction that have been implicated in a depressotypic organization and disrupted cognitive development. Moreover, the intervention is considered to facilitate the toddler's strivings for self-differentiation, the predominant stage-salient issue of this period. In meeting the developmental challenges of the consolidation of the self, the toddler must be free to explore and engage the environment. Emerging autonomy is facilitated by play and language, and self-knowledge becomes evident through increasing abilities to label emotion states, intentions, and cognitions (Bretherton & Beeghly, 1982; Cicchetti, 1990; Kagan, 1981). The child also becomes able to use symbolic means of communicating and expressing complex needs. Relatedly, toddlers of depressed mothers who evidence more competent development of self-awareness in

conjunction with stable affect in relation to the self have been shown to have higher Bayley MDI scores (Cicchetti *et al.*, 1997).

Toddler-Parent Psychotherapy strives to create a relational context that facilitates the child's self-development, through reducing maternal negative attributions about the child and establishing more positive affective expression and communication between mother and child. Through improving the mother-child relationship, a greater sense of agency and self-efficacy in the child is facilitated, thereby fostering greater exploration of the environment and greater desire for mastery (Ryan, Deci, & Grolnick, 1995). The child's self expression and effectiveness in communication were likely advanced through improvements in the mother-child relationship for participants in the intervention. In fact, differences in verbal abilities, as evidenced by higher WPPSI-R Verbal IQ scores, were found in the children of depressed mothers in the intervention, as compared to those who were not in the intervention. These findings are congruent with results obtained in the literature.

For example, in a longitudinal investigation of a large heterogeneous sample, the NICHD Early Child Care Research Network (1999) discovered that children whose mothers reported depressive symptoms performed more poorly on measures of cognitive and linguistic functioning than did children of mothers who never reported depressive feelings. Moreover, maternal sensitivity was found to moderate the depression group differences in expressive language. Specifically, a composite rating of maternal sensitivity derived from coding free play observations was shown to be a better predictor of positive developmental outcomes among children whose mothers reported feeling depressed. Additionally, in studies conducted with high-risk socioeconomically disadvantaged samples, toddlers who had a closer relationship with their mothers have been found to exhibit more advanced expressive language and display more advanced emotional and self-language. Moreover, such internal state language was used to refer to the self in more differentiated, noncontext-bound ways, suggestive of more advanced self-development (Beeghly & Cicchetti, 1994; Coster, Gersten, Beeghly, & Cicchetti, 1989; Gersten, Coster, Schneider-Rosen, Carlson, & Cicchetti, 1986; see also, Morisset, Barnard, Greenberg, Booth, & Spieker, 1990).

In the present investigation, girls generally attained higher cognitive development scores than boys, consistent with other studies (Hay & Kumar, 1995; Murray, 1992; Sharp *et al.*, 1995). However, no differences were observed across the three treatment groups based on gender. Some previous work has suggested that boys were more vulnerable than girls to the effects of maternal depression (Hay

& Kumar, 1995; Murray, 1992; Sharp *et al.*, 1995). The lack of a differential effect for gender across the groups in this study indicates that the intervention was equally effective in promoting normative cognitive development for both genders.

It could be argued that the absence of maternal and paternal IQ data precludes the examination of the contribution that genetic factors may make to the cognitive findings obtained herein. However, several lines of evidence appear to cast doubt on a genetic interpretation of these results. Specifically, because of the random assignment of the toddlers with depressed mothers to the intervention and nonintervention groups, it is unlikely that maternal differences in intelligence were present in the two depressed groups. Furthermore, because maternal education may be considered a proxy for maternal intelligence, it is noteworthy that maternal education differences did not exist in this middle-class sample, and maternal education was not found to relate differentially to children's cognitive outcomes. Had the sampling strategy in this investigation allowed for inclusion of mothers with less than a high school education, perhaps the broader range of education would have revealed a greater impact of lower maternal education on children's cognitive attainments.

In order to focus on the influence of maternal depression in the absence of multiple social risks that detract from optimal child development (Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987), the sample of this study was confined to families that were not struggling with socioeconomic adversity. The findings of the present investigation are particularly compelling because they are related more exclusively to the impact of maternal depression and the intervention's effectiveness in alleviating the negative sequelae in the children of depressed mothers, in the absence of additional social risk factors. Furthermore, the random assignment to intervention and nonintervention conditions resulted in depressed groups that were indistinguishable in terms of varied demographic features, thereby minimizing potential alternative interpretations of the results.

Some research has suggested that maternal depression in the postpartum period impacts cognitive development, whereas later maternal depression does not contribute further to negative outcomes. In other developmental domains, chronic maternal depression has been shown to have a negative impact (Campbell, Cohn, & Meyers, 1995; Teti, Gelfand, Messinger, & Isabella, 1995). In the current investigation, children of depressed mothers who did not receive the intervention and whose mothers had subsequent depressive episodes had the poorest cognitive outcomes. In contrast, among children of depressed

mothers in the intervention group, no differences in cognitive development were observed for those children of mothers in the intervention who did or did not have subsequent depressive episodes between baseline and age 3. Thus, Toddler-Parent Psychotherapy contributed to children making normative cognitive advances, even when mothers continued to struggle with recurrent depression. For those not receiving the preventive intervention, children of depressed mothers were more delayed when their mothers had recurrent depressive episodes. In fact, among children whose mothers had subsequent depressive episodes, there was nearly a 15-point difference in Verbal IQ favoring children in the intervention group. Consequently, the effects of maternal depression did not appear to be restricted to early periods of the child's life, but continued to pose further threat to competent attainments in these offspring. Importantly, the preventive intervention had a potent effect in reducing the risk of maternal depression on normative cognitive advances.

The intervention was not designed to treat maternal depression, but rather to help mothers become more sensitive and responsive to their offspring. The current findings suggest that although biological contributors to depressive illness may continue to operate, it is possible to help mothers interact positively with their children. We believe that advances made by mothers with respect to their attunement to their offspring may persist even in the face of recurrent depressive episodes. It will be important to examine this assumption more closely as analyses of functioning in mothers and their offspring continue.

Interestingly, recurrent maternal depression in the presence of intervention was shown to safeguard toddler cognitive development, whereas other features of maternal psychopathology and family features suggestive of alternate means of augmenting cognitive stimulation did not. Specifically, the presence of comorbid psychiatric disorders among the depressed mothers did not appear to influence cognitive outcomes differentially for those toddlers who took part in the intervention and those who did not. Thus, features of experiencing a mother with ongoing severe depressive symptomatology appeared particularly influential in impeding cognitive attainments, whereas the presence of other forms of psychopathology, along with depression, did not contribute differentially to further hindering cognitive advances. The presence of fathers, participation in daycare, having a sibling, or whether or not the mother worked constituted possible family influences that could have influenced differences in cognitive stimulation among toddlers in the DI group, thereby potentially contributing to the cognitive differences observed. However, none of these factors were able to account for the advances that were found in the DI group, relative to the DC group.

Thus, the beneficial preventive effects of Toddler-Parent Psychotherapy remain as a compelling explanation for the cognitive group differences.

Within the intervention group, variation in the length of treatment and the number of sessions conducted also did not appear to influence differentially the cognitive advances attained at 3 years of age. Although length of treatment was not related to outcome in the current investigation, the study was not designed to assess this dimension, and participants were not randomly assigned to treatment conditions that varied in length. Future investigations will need to evaluate systematically whether shorter programs of intervention will be equally effective in fostering cognitive development.

Despite the importance of the findings of this investigation, it is not without limitations. First, the attrition that occurred in the treatment group is of concern. It may be that the intensive nature of the intervention resulted in excessive demands being placed on women who were already feeling overwhelmed. Future research might seek to evaluate whether a shorter course of intervention could be equally effective while also minimizing the number of participants who discontinued treatment. Utilization of the Bayley Scales at baseline and the WPPSI-R at follow-up also raises issues regarding the lack of comparability between these measures. At the time this investigation was initiated, the revised Bayley was not available. Rather than changing the version of the instrument used and having variability among participants on this measure, the 1969 Bayley was utilized throughout the study. Moreover, because the 1969 Bayley does not have norms for age 36 months and because future plans included following children into the school-age years, the WPPSI-R was used in order to have consistency with later measures of intelligence. The absence of the inclusion of an assessment of mother-child interaction also is a limitation of the current study, as it restricts our ability to ascertain the actual extent to which improved mother-child interaction was related to cognitive development.

Future research resulting from this project will examine the extent to which changes in mother-child interaction and communication resulting from TPP relate to maintenance of cognitive development in offspring of depressed mothers. Similarly, examination of the extent to which TPP supported secure attachments and improved attachment security in those toddlers who were initially insecure will be important for determining the manner in which TPP positively impacted cognitive development in these high-risk children.

The results of this investigation possess significant implications for the criticality of providing preventive interventions for children of depressed mothers. The fact

that more difficulties emerged over time among the offspring of mothers with subsequent depression further underscores the need for intervening preventively in the lives of these children. It is equally important that mothers suffering from depressive disorders be helped to recognize that their illness does not necessarily have to impact negatively on their child's development. Rather, by fostering an understanding of the potential risks associated with parental depression and by encouraging parents to obtain preventive services, children's negative developmental trajectories can be avoided. Unfortunately, currently the majority of interventions available for depression focus on the depressed individual. Therefore, efforts must be directed toward the provision of services to young offspring of depressed parents. Such initiatives will increase the likelihood that offspring of affectively disordered caregivers will avoid the development of a depressotypic organization, and that age-appropriate cognitive skills and success on subsequent stage-salient issues of positively adapting to school will be promoted.

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