

The Impact of Treatment Intervention on Parenting Stress in Postpartum Depressed Mothers: A Prospective Study

Shaila Misri, MD, FRCPC
BC Women's Hospital, St. Paul's Hospital
and University of British Columbia

Pratibha Reebye, MD, FRPC
University of British Columbia

Lisa Milis, BA, and Sharita Shah, MD
St. Paul's Hospital

The aim of this study was to evaluate whether treatment intervention for postpartum depression impacted maternal parenting stress levels. Twenty-three mothers referred for postpartum mood and anxiety disorder to an outpatient program were included in the study. Statistically and clinically significant decreases in levels of parenting stress were evident at the end of the treatment. Subjects' perceptions of their parenting characteristics were found to be a major contributor to stress levels. In addition to monitoring of depressive symptoms, routine assessment of maternal parenting qualities is recommended to ensure healthy child outcomes.

Keywords: postpartum depression, parenting stress, combination therapy

The birth of a baby brings with it new and challenging demands for the parents. All parents experience some degree of stress (Mulsow, Caldera, Pursley, Reifman, & Huston, 2002). There are a number of models examining the different kinds of stress involved in parenting (Abidin, 1995; Belsky, 1984; Lazarus & Folkman, 1984). Some highlight mothers' past experiences; others stress mothers' perception of parenting. Among the many ways of conceptualizing parenting stress is Abidin's (1995) model, which defines parenting stress as the disparity between the demands associated with the parenting role and the perceived availability of resources for dealing with those demands. According to this model, total parenting stress is a function of parent and child characteristics and external situational variables.

Postpartum depression is a parent-related stress factor likely to impact the maternal–infant dyadic relationship. Postpartum depression is a major burden for a mother, significantly affecting her ability to cope with life events, including parenting tasks (Feske et al., 2001; Gotlib & Hammen, 1992). There is a growing body of literature indicating that high levels of parenting stress can have negative consequences for both parent and child. For example, in a study conducted by Gelfand, Teti, and Fox (1992), blind raters judged depressed mothers with higher levels of parenting stress to be less competent and less affectively appropriate with their babies. Conversely, depressed mothers with lower levels of reported

parenting stress were perceived by raters to be more competent, warm, and sensitive in their interactions with their infants. Similarly, Teti, Nakagawa, Das, and Wirth (1991) found parenting stress to be negatively related to the quality of mothers' interactions with their children. In addition to impacting parent–child relationships and disturbing the attachment process (Hadadian & Merbler, 1996), high levels of parenting stress can contribute to the disruption of family systems and indirectly affect children's development (Mash & Johnston, 1990). Given the negative impact of parenting stress on children's cognitive, affective, and social development (Crnic & Acevedo, 1995; Rodgers, 1993), it is important to examine the determinants of parenting stress, with a view to alleviating it.

In this article, we examine the levels of parenting stress reported by a group of mothers receiving treatment for moderate to severe postpartum depression with comorbid anxiety. These data were collected as part of a larger study to evaluate whether the addition of cognitive–behavioral therapy (CBT) to standard antidepressant treatment offers additional benefits in recovery from postpartum mood and anxiety disorders (Misri, Reebye, Corral, & Milis, 2004). We expected that postpartum depressed women would be experiencing clinically significant levels of parenting stress and evaluated whether treatment intervention for maternal depression altered parenting stress levels. We hypothesized that reduction of maternal depressive symptoms would be associated with a decrease in parenting stress levels. In addition, we expected that administration of two modalities of treatment rather than one would lead to a superior outcome with regard to alleviation of parenting stress.

Method

Procedure

A sample of 35 mothers recruited from outpatient referrals to the Reproductive Mental Health Program at St. Paul's and BC Women's

Shaila Misri, MD, FRCPC, BC Women's Hospital, Reproductive Mental Health Program, St. Paul's Hospital, Vancouver, British Columbia, Canada, and Department of Psychiatry, University of British Columbia, Vancouver; Pratibha Reebye, MD, FRPC, Department of Psychiatry, Infant Psychiatry, University of British Columbia; Lisa Milis, BA, and Sharita Shah, MD, Reproductive Mental Health Program, St. Paul's Hospital.

For reprints and correspondence: Shaila Misri, MD, FRCPC, Reproductive Mental Health Program, St. Paul's Hospital, 1081 Burrard Street, Vancouver, British Columbia V6Z 1Y6, Canada. E-mail: smisri@providencehealth.bc.ca

Hospitals in Vancouver, British Columbia, Canada, participated in the study, which was approved by the University of British Columbia Research Ethics Board and St. Paul's Hospital Research Ethics Board.¹ Written informed consent was obtained from all patients after the procedure had been fully explained. Patients diagnosed with major depression (with or without comorbid anxiety disorder) postpartum onset, as per the *DSM-IV* (American Psychiatric Association, 1994) criteria, were randomly assigned to two treatment groups. Group 1 received standard antidepressant therapy (with paroxetine in this study), whereas Group 2 received a combination of paroxetine plus 12 sessions of CBT. Group 1 consisted of 16 subjects, whereas Group 2 had 19 subjects. In addition to measures of maternal mood, subjects completed the 101-item Parenting Stress Index (PSI; Abidin, 1995) before and after treatment.

Measures

The 101-item PSI is a self-report instrument designed to assess parental perceptions of the degree of stress related to different dimensions of the parenting role (Abidin, 1995). Parents are asked to report how strongly they agree with each statement by marking a Likert scale ranging from *strongly agree* to *strongly disagree*, with higher scores representing greater distress. According to the manual, parents who obtain a Total Stress score above 260 (85th percentile) are considered to be experiencing clinically significant levels of stress; the scale has been validated in clinical as well as healthy populations (Abidin, 1995).

The inventory includes 13 subscales grouped into a Child Domain and a Parent Domain, which combine to form a Total Stress scale. The Child Domain measures parents' perceptions of the child's characteristics. Child-related stress factors include demandingness, adaptability, mood, ability to reinforce the parent, acceptability, and distractibility/hyperactivity. The Parent Domain reflects parents' perceptions of their own characteristics that may impact parenting ability. Examples of parent-related factors include depression, health, attachment, sense of competence, restriction of role, social isolation, and relationship with spouse. An optional 19-item Life Events Stress scale is also provided. For the purpose of this study, only the Child Domain, Parent Domain, and Total Stress scales were analyzed.

Analysis

Complete data sets were available for 13 subjects in Group 1 and 10 in Group 2. Subjects who were missing either pre- or posttest PSI scores were omitted from analysis. Pre- to posttreatment changes in PSI scores and differences between treatment groups' posttreatment PSI scores were analyzed via paired and independent samples *t* tests. All statistical tests were two-tailed, and significance was determined at the level $p < .05$. SPSS Version 11 was used to conduct analyses.

Results

Sample Characteristics

The mean age of subjects was 30.34 years ($SD = 4.27$). The mean age of their infants was 5.27 months ($SD = 2.68$). All mothers were married, and 11 (47.8%) were working. All but 1 of the mothers had completed high school, and 11 (48%) had a postsecondary education. Twelve (52.2%) of the mothers had one child, 10 (43.5%) had two children, and 1 had three children. The majority of the mothers (78.3%) were Caucasian, 4 (17.4%) were Asian, and 1 was First Nations. Prior to receiving treatment, subjects were shown to be moderately depressed and/or anxious, with mean HAM-D and HAM-A (Hamilton, 1959, 1960) scores at entry to the study of 21.65 ($SD = 2.74$) and 21.43 ($SD = 8.08$), respectively. Mean HAM-D and HAM-A scores at the end of the

Table 1
Pretreatment Parenting Stress Index (PSI) Long Form Scores and Associated Percentile Ranks for All Postpartum Depressed Subjects in the Sample (N = 23)

PSI domain	PSI score ($M \pm SD$ raw score)	Percentile (clinical cutoff: 85th percentile)
Child Domain	108.7 \pm 19.6	70th
Parent Domain	169.9 \pm 27.5	95th
Total Stress	278.6 \pm 40.9	90–95th
Defensive responding ^a	54.9 \pm 8.0	

^a No subjects scored below the cutoff of 24.

study were 4.78 ($SD = 4.79$) and 5.21 ($SD = 5.57$), respectively, corresponding to none/minimal depression and anxiety.

Parenting Stress Levels in Mothers Diagnosed With Postpartum Depression

Subjects' scores on the PSI Child Domain, Parent Domain, and Total Stress scales were compared to the published norms, as cited in the PSI manual (Abidin, 1995). Table 1 presents subjects' mean pretreatment raw scores on the 101-item PSI. The mean pretreatment Total Stress score was above the clinical cutoff score of 260. Only 5 of the 23 subjects (22%) scored below the cutoff.

We explored the extent to which parent- and child-related factors contributed to parenting stress levels in our sample of postpartum depressed women. Separate analysis of pretreatment scores on the Parent and Child Domains revealed a mean score on the Parent Domain of 169.9 ($SD = 27.5$), which was above the 85th percentile clinical cutoff. Subjects' mean score on the Child Domain was below the clinical cutoff.

Effects of Treatment Intervention on Parenting Stress Levels

We compared the PSI scores of subjects in Group 1 with the PSI scores of subjects in Group 2 to examine whether the two types of treatment intervention had a differential effect on parenting stress levels. Total stress levels and parent- and child-related stress levels for both treatment groups closely resembled each other (Figures 1, 2, and 3).

Although no significant differences between the two treatment groups were found, analyses of changes in scores from pre- to posttreatment yielded some significant findings. The decrease in PSI Total Stress scores from pre- to posttreatment was statistically, $t = 4.51$, $df = 22$, $p < .01$, and clinically significant (see Figure 1). Before patients received either monotherapy or combination therapy, their mean Total Stress score on the PSI inventory was 278.6 ($SD = 40.9$). Following treatment, Total Stress scores dropped below the clinical cutoff to a mean of 237.3 ($SD = 39.9$).

¹ The larger study was supported by an unrestricted grant from Glaxo-SmithKline Canada (Grant No. 29060/822). Overall experimental design, data acquisition, statistical analyses, and interpretation of the results were implemented without any input from GlaxoSmithKline Canada.

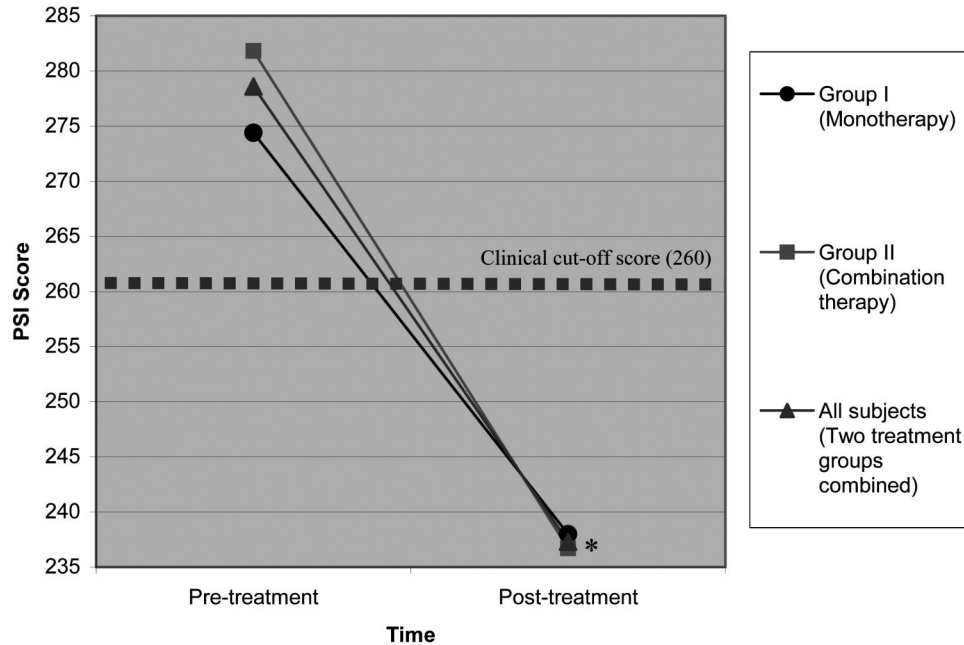


Figure 1. Mean Parenting Stress Index (PSI) Total Stress scores at pre- and posttreatment. Decreases in scores for all subjects ($N = 23$) were significant at $p < .01$.

When scores for the separate domains were examined, a similar pattern emerged. Analysis of Parent Domain scores revealed a clinically and statistically significant, $t = 5.17$, $df = 22$, $p < .05$, decrease in scores from pre- to posttreatment (see Figure 2). Analysis also revealed a statistically significant decrease, $t = 2.80$, $df = 22$, $p < .05$, in Child Domain scores from pre- to posttreatment (see Figure 3).

Subanalyses of Responders Versus Nonresponders

Subjects were considered to have responded to treatment if they achieved HAM-D scores of no higher than 7 (corresponding to none/minimal depression) by their final visit. In our final sample, 6 subjects had not responded to treatment by the end of the study (nonresponders), and 17 patients were in remission (responders).

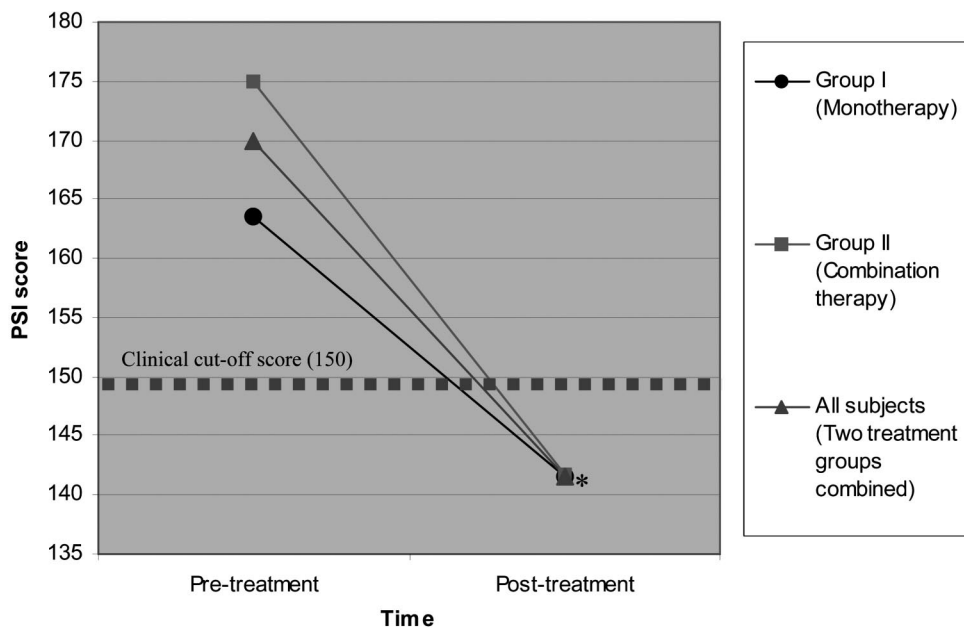


Figure 2. Mean Parenting Stress Index (PSI) Parent Domain scores at pre- and posttreatment. Decreases in scores for all subjects ($N = 23$) were significant at $p < .05$.

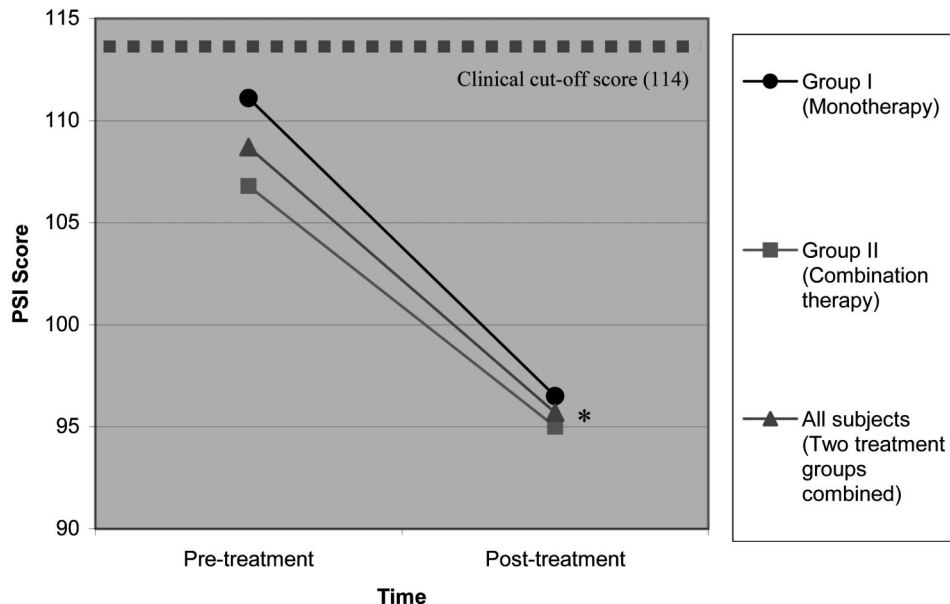


Figure 3. Mean Parenting Stress Index (PSI) Child Domain scores at pre- and posttreatment. Decreases in scores for all subjects ($N = 23$) were significant at $p < .05$.

The mean posttreatment PSI Total Stress score, $t = 3.48$, $df = 21$, $p < .05$, and Parent Domain score, $t = 4.10$, $df = 21$, $p < .01$, of the 6 nonresponders were significantly higher than the scores of the 17 patients who were in remission at the end of the study. Unlike the responders, the nonresponders continued to demonstrate clinically significant levels of parenting stress at the end of the study.

Discussion

We evaluated the levels of parenting stress in mothers diagnosed and treated for postpartum mood and anxiety disorder. Results indicated that the mothers in our sample were experiencing clinically significant levels of parenting stress prior to treatment. This finding is consistent with previous research reporting high levels of parenting stress in postpartum depressed women (Buist, 1998; Ethier, Lacharite, & Couture, 1995; Gelfand et al., 1992; Gotlib & Hammen, 1992; Webster-Stratton & Hammond, 1988).

When we analyzed the separate domains on the PSI, our sample of depressed postpartum mothers showed greater parent-related stress. These findings suggest that, despite their mood and anxiety disorder, mothers in our sample did not perceive their infants to be a major source of stress. Rather, it appears that the woman's perception of whether she was "a good enough mother" was a major contributor to stress levels.

The finding that parent-related factors significantly contributed to maternal stress levels in our sample is consistent with the findings of other researchers. Gelfand et al. (1992) examined the sources of parenting stress for depressed and nondepressed mothers of infants and found the severity of stress to be positively related to scores on the Parent Domain. Frankel and Harmon (1996) also noted a tendency in depressed women to negatively evaluate themselves as parents and reported that depressed mothers were significantly more likely than their nondepressed peers to

report role restriction, less attachment to their child, less sense of parenting competence, more social isolation, and poorer health on the PSI subscales.

In keeping with Frankel and Harmon's (1996) study, which reported that the mean PSI scores of depressed women were significantly higher than those of women in remission, we performed subanalyses of our data. A comparison of responders' and nonresponders' posttreatment scores replicated the findings of Frankel and Harmon; nonresponders had significantly higher levels of total stress and parent-related stress and continued to demonstrate clinically significant levels of parenting stress at the end of the study.

The fact that there were statistically and clinically significant improvements in PSI scores at the end of the study suggests that both antidepressant monotherapy and combination therapy with antidepressants and CBT were effective in decreasing parenting stress. Contrary to our expectations, there were no significant differences between the two treatment groups; both forms of treatment were associated with a significant reduction in parenting stress levels. This may be because the CBT treatment focused on providing mothers with the tools to reduce symptoms of postpartum depression rather than emphasizing effective parenting skills. The fact that both forms of treatment led to a comparable decrease in parenting stress levels suggests that treatment interventions for postpartum depression might have an indirect effect on parenting stress. That is, rather than targeting parenting stress specifically, both treatment modalities, in reducing postpartum depression and anxiety, led to a corresponding decrease in parenting stress. This finding is consistent with the literature supporting a strong association between postpartum depression and parenting stress (Feske et al., 2001; Gotlib & Hammen, 1992).

There were some limitations in our study. First, no objective measures of infant temperament were available, which made it

difficult to assess the impact of infant temperament on parenting stress levels. Nevertheless, the mean scores on the Child Domain of the PSI were below the clinical cutoff, suggesting that infant temperament was not perceived to be a significant contributor to mothers' parenting stress levels. Second, in the absence of a nontreatment control group, it is possible that the results reflect the effects of time rather than treatment. However, the finding that there were significant differences between responders and nonresponders, with nonresponders continuing to demonstrate clinically significant levels of stress at the end of the treatment, suggests that the treatment played some role in decreasing parenting stress levels. Finally, the lack of complete data for a large percentage of the sample is problematic. Four patients had only baseline PSI scores available, whereas another 4 had only final scores available. Both pre- and posttreatment PSI scores for 4 patients were missing. It is possible that there was some sample self-selection occurring, which may, in turn, limit the generalizability of the findings. However, there were no significant differences in demographic variables or mean pre- and posttreatment HAM-D and HAM-A scores between patients who were included in the analysis and those who were omitted from analysis because of incomplete PSI scores. Furthermore, the available pre- and posttreatment PSI scores of patients who were omitted because of incomplete data were comparable to the scores of the remaining participants, which suggests that participants with missing data were no different from those who were included in the analysis.

Despite the limitations, our findings have important clinical implications. Research on postpartum depressed mothers has focused mainly on attachment issues and mother–infant relationships. This study advocates the use of a validated tool such as the PSI to interpret aspects of parenting stress perceived by depressed mothers on a routine basis. Although many studies have operationalized abstract concepts such as mother–infant bonding, use of research tools in busy clinicians' offices offers challenges. Perception of presence or absence of parenting stress is just one facet of the parent–infant relationship. Our study has demonstrated that it is possible to capture this important aspect of the relationship in concrete terms. We highlight the importance of including routine assessment of maternal parenting qualities when treating a postpartum depressed population to ensure healthy child outcomes.

References

- Abidin, R. R. (1995). *Parenting Stress Index: Professional manual* (3rd ed.). New York: Psychological Assessment Resources.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Belsky, J. (1984). The determinants of parenting: A process model. *Child Development, 55*(1), 83–96.
- Buist, A. (1998). Childhood abuse, parenting and postpartum depression. *Australian and New Zealand Journal of Psychiatry, 32*, 479–487.
- Crnic, K., & Acevedo, M. (1995). Everyday stresses and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting* (pp. 277–297). Mahwah, NJ: Erlbaum.
- Ethier, L. S., Lacharite, C., & Couture, G. (1995). Childhood adversity, parental stress, and depression of negligent mothers. *Child Abuse and Neglect, 19*, 619–632.
- Feske, U., Shear, M. K., Anderson, B., Cyranowski, J., Strassburger, M., Matty, M., et al. (2001). Comparison of severe life stress in depressed mothers and non-mothers: Do children matter? *Depression and Anxiety, 13*(3), 109–117.
- Frankel, K. A., & Harmon, R. J. (1996). Depressed mothers: They don't always look as bad as they feel. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*, 289–298.
- Gelfand, D. M., Teti, D. M., & Fox, C. E. (1992). Sources of parenting stress for depressed and nondepressed mothers of infants. *Journal of Clinical Child Psychology, 21*, 262–272.
- Gotlib, I. H., & Hammen, C. L. (1992). *Psychological aspects of depression: Toward a cognitive-interpersonal integration*. Toronto, Ontario, Canada: Wiley.
- Hamilton, M. (1959). The assessment of anxiety states by rating. *British Journal of Medical Psychology, 32*, 50–55.
- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery, and Psychiatry, 23*, 56–62.
- Hadadian, A., & Merbler, J. (1996). Mother's stress: Implications for attachment relationships. *Early Child Development and Care, 125*, 59–66.
- Lazarus, R. S., & Folman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Mash, E. J., & Johnston, C. (1990). Determinants of parenting stress: Illustrations from families of hyperactive children and families of physically abused children. *Journal of Clinical Child Psychology, 19*, 313–328.
- Misri, S., Reebye, P., Corral, M., & Milis, L. (2004). The use of paroxetine and cognitive-behavioral therapy in postpartum depression: A randomized controlled trial. *Journal of Clinical Psychiatry, 65*, 1236–1241.
- Mulsow, M., Caldera, Y. M., Pursley, M., Reifman, A., & Huston, A. C. (2002). Multilevel factors influencing maternal stress during the first three years. *Journal of Marriage and Family, 64*, 944–956.
- Rodgers, A. (1993). The assessment of variables related to the parenting behavior of mothers with young children. *Children and Youth Services Review, 15*, 385–402.
- Teti, D. M., Nakagawa, M., Das, R., & Wirth, O. (1991). Security of attachment between preschoolers and their mothers: Relations among social interaction, parenting stress, and mothers' sorts of the Attachment Q-set. *Developmental Psychology, 27*, 440–447.
- Webster-Stratton, C., & Hammond, M. (1988). Maternal depression and its relationship to life stress, perceptions of child behavior problems, parenting behaviors, and child conduct problems. *Journal of Abnormal Child Psychology, 16*, 299–315.

Received March 31, 2004

Revision received November 19, 2004

Accepted December 10, 2004 ■