Interactions Between Children With Juvenile Rheumatoid Arthritis and Their Mothers

Thomas G. Power,1 PhD, Lynnda M. Dahlquist,2 PhD, Suzanne M. Thompson,3 PhD, and Robert Warren4, MD
1Washington State University, 2University of Maryland Baltimore County, 3St. Louis Children’s Hospital, and 4Baylor College of Medicine and Texas Children’s Hospital

Objective To determine the degree to which mothers of children with juvenile rheumatoid arthritis (JRA) show an overprotective or highly controlling interaction style. Method We videotaped 84 mother-child pairs (42 JRA and 42 healthy, ages 6 to 13) while working on a collaborative problem-solving task. Based on physical therapy evaluations, children in the JRA group were assigned to “more severe” (n = 19) and “milder” (n = 22) arthritis subgroups. Results Results showed numerous differences between mothers of children with more severe arthritis and the other mothers (no differences between the milder arthritis and healthy comparison groups were found). Compared to mothers in the other two groups, mothers of children with more severe arthritis were more directive of their children’s behavior during the task, showing higher rates of structure and rule setting, general clues, and prompting the child for an answer. Discussion Sequential analyses showed that mothers in the more severe group appeared to treat the task in a more evaluative manner, being more likely than other mothers to respond to correct answers with positive feedback and to incorrect answers with structure and rule setting. Mothers in the other groups were more likely to respond to both correct and incorrect answers with specific clues. Conclusions We discuss how these differences in interactional style might impact the social development of children with JRA.

Key words parenting; chronic illness; overprotection; juvenile rheumatoid arthritis.

A critical task of middle childhood and adolescence is the development of initiative and autonomy (e.g., Baumrind, 1971; Erikson, 1959; Grotevant & Cooper, 1986; Lamborn & Steinberg, 1993). As children come to depend less on their parents and significant others in facing the challenges of daily living, they develop the social and problem-solving skills that serve as the basis for later successful functioning in adult roles. Parents play a crucial role in the development of children’s autonomy; research has documented the relationship between specific autonomy-granting parenting practices and children’s autonomous social functioning. The most autonomous and “instrumentally competent” children have parents who give them input into the socialization process, who use noncoercive methods in achieving child compliance, and who show high levels of communication and responsiveness (Maccoby & Martin, 1983; Power & Manire, 1992).

Although the development of initiative and autonomy is just as important in children with chronic diseases, research has shown that parents of chronically ill children often inadvertently discourage the development of autonomy through overprotective, and often intrusive, child-rearing practices (e.g., Cappelli et al., 1988; Cappelli, McGrath, McDonald, Katsanis, & Lascelles, 1989; Wright, Mullen, West, & Wyatt, 1993). By reinforcing dependency, restricting individual freedom, and “protecting” the child from the consequences of his or her disease, parents of chronically ill children may interfere with the development of the social skills needed to function effectively in the social environment. This may be particularly true for
children with juvenile rheumatoid arthritis (JRA), in that the physical limitations, pain, and chronic, intermittent nature of this condition may have a significant effect on the nature of parent-child interactions.

To manage the child's illness, parents often take much more responsibility for the child's physical care than is normally necessary. For example, parents of children with JRA often monitor their child's pain, diet, exercise, sleep, school activities, recreational activities, and medications at a much more intense level than is typical for the child's developmental stage. Thus, the demands of the illness may influence parents to take on more protective, more controlling, or more intrusive parenting roles. As a result, making the transition from parent-controlled disease management to patient-controlled self-management as the child matures may be difficult.

Emotional factors may further complicate the parents' task. Parents can be expected to become anxious or depressed when faced with the strain of dealing with their child's pain and physical limitations (Daniels, Moos, Billings, & Miller, 1987). In some circumstances, protective discipline practices may serve to avoid difficult situations for the child (and parent) and may thereby reduce the parent's emotional discomfort (e.g., performing a task for the child may prevent the child or parent from becoming embarrassed by the child's limitations). In this manner, overly protective parenting practices may be inadvertently negatively reinforced and may gradually come to predominate.

However, excessively protective parenting restricts the child's exposure to age-appropriate independent activities and may foster excessive dependency in the child. If the child's peer interactions are limited, the child's opportunities to gain skills in interpersonal relationships and to gain confidence in socializing with peers are jeopardized. Indeed, there appears to be some evidence that children with JRA have fewer peer activities and more negative views of their own social status than do healthy children (Billings, Moos, Miller, & Gottlieb, 1987; Pendley, Dahlquist, & Cradock, 1996; Taylor, Passo, & Champion, 1987; Timko, Stovel, Moos, & Miller, 1992).

The effects of arthritis on psychosocial development may vary as a function of disease severity. Children with more severe arthritis likely experience greater effects of the disease on their day-to-day lives than children with milder arthritis. Billings et al. (1987), for example, found that children with severe rheumatic disease had more psychological problems than both children with a milder or inactive rheumatic disease and healthy children. Older children in the severe group also reported participating in fewer social activities with family and friends than did the healthy controls.

Although numerous authors have commented on the risks associated with overprotective parenting received by children with chronic illness (e.g., Cappelli et al., 1989; Wright et al., 1993), empirical support for this notion is limited to a few studies demonstrating a relation between parental report of overprotection and number of child behavior problems (e.g., Cappelli et al.; Pless, Roghmann, & Haggerty, 1972; Sabbeth, 1984). Although adolescents with JRA, in one study, reported that their parents were more overprotective than the parents of healthy peers (Aaslund, Novik, Flato, & Vandvik, 1998), to our knowledge, no observational study of interactions between children with JRA and their parents has been published. The purpose of this study was to investigate the degree to which mothers of children with JRA show overprotective or overly controlling interaction styles as compared to mothers of healthy children and to see if maternal overprotectiveness varies according to disease severity. Mothers of 6- to 13-year-old children were observed interacting in a problem-solving task previously found to be effective in eliciting dependency-promoting behaviors in mothers (Rothbart & Rothbart, 1976). We predicted that mothers of children with JRA would be more likely than mothers of healthy children to give their children help during the task and to otherwise direct child behavior. Mothers of healthy children were expected to grant their children more autonomy and therefore show lower levels of directiveness. The differences between the JRA and the healthy groups were expected to be greatest for children with the most severe arthritis.

**Method**

**Participants**

Forty-two children with JRA (33 girls) between ages 6 and 13 and their mothers participated in the study. Children with mental retardation and children whose mothers were not the custodial parent were excluded. Children with arthritis and a coexisting serious chronic illness such as asthma or diabetes also were excluded. All children with JRA between the ages of 6 and 13 who were seen in the rheumatology outpatient clinic over a 2-year period and met the inclusion criteria were recruited for this study, which was part of a larger study of parenting practices and social adjustment in pediatric arthritis patients. Only two mothers declined to participate; 95% agreed to participate.

Based on a median split analysis of the physical ther-
apist's estimates of joint severity, we assigned children to “more severe” (n = 19) and “milder” (n = 22) arthritis groups. (One child was eliminated because she had not had a recent physical therapy evaluation.)

A comparison sample of 42 children with no history of a chronic illness (33 girls) and their mothers, matched for child’s age, gender, and family socioeconomic status (SES) were recruited via advertisements in local newspapers. Comparison of the three groups of children on a range of demographic variables (e.g., maternal age, SES, ethnicity) revealed only one significant difference between the groups. Children in the more severe arthritis group were younger than children in the other two groups, F(2, 80) = 3.78, p < .05. Therefore, child age was controlled in all subsequent analyses.

Mean age of the children was 9.96 years (SD = 2.40). The mean ages for the more severe, milder, and healthy groups were 8.97 (SD = 2.45), 10.96 (SD = 2.91), and 9.95 (SD = 2.25) years, respectively. Mean age of the mothers was 36.69 years (SD = 4.91). Mean education of the mothers was 14.68 years, (SD = 2.46), with a range of 8 to 21 years. The sample was primarily middle class, with a mean Hollingshead SES score of 45.04 (SD = 12.06).

**Procedure**

Undergraduate and graduate psychology students served as research assistants. Potential JRA participants were recruited by a research assistant while they waited for their doctor’s appointment. Potential comparison subjects were screened over the phone and scheduled for the evaluation. The study was explained in person to each parent and child. Informed consent was obtained from the parent in accordance with institutional review board policies. Assent was obtained from the child. Participants received $20 in cash at the end of the session. The mother-child interaction sessions were conducted in examination or interview rooms. Institutional review boards at Baylor College of Medicine and Texas Children’s Hospital approved the experimental procedures.

**Measures**

**Demographics.** Parents completed a brief questionnaire specifying marital status, parents’ education and occupations, and ethnicity. SES was calculated according to the Hollingshead (1975) 4-factor index of SES.

**Medical Status and Physical Limitations.** Two commonly utilized indicators of arthritis severity were extracted from the child’s most recent physical therapy evaluation: joint swelling and joint range of motion. For each joint examined, a physical therapist with several years of experience with JRA patients first rated the degree of swelling (0 = none, 1 = mild, 2 = moderate, 3 = marked) and then determined the degree to which movement was impaired (0 = full range of motion, 1 = 25% limitation, 2 = 50% limitation, 3 = 75% limitation, and 4 = 100% limitation). The swelling and range of motion scores were then summed to yield an estimate of the severity of inflammatory activity in the joints. Similar articular (joint) severity indices are widely considered to be valid, sensitive indicators of short-term and intermediate fluctuations in rheumatoid arthritis status (Giannini et al., 1997; Pincus, Brooks, & Callahan, 1999; Ruperto et al., 1999.)

The mean number of swollen joints was 1.45 (SD = .96) for the mild arthritis group and 13.42 (SD = 11.14) for the severe arthritis group. The mean limitation of motion score was 1.41 (SD = 1.50) for the mild arthritis group and 10.94 (SD = 9.08) for the severe arthritis group. Overall arthritis severity scores ranged from 0 to 90 (M = 14.22, SD = 19.04), with a mean of 3.0 (SD = 1.75) for the mild arthritis group and a mean of 27.21 (SD = 21.69) for the severe arthritis group.

**Mother-Child Interaction Task.** To assess maternal help giving, we asked each child and mother to participate in a “memory game” task based on the work of Rothbart and Rothbart (1976). To minimize the reactivity of audiotaping on mothers’ behavior, instructions emphasized the memory aspect of the task. Mothers were told that the investigators were piloting a task for possible use in future studies of the effects of medication on children’s memory and attention. They were given a poster with pictures of 36 familiar animals and a separate form that listed each animal. They were instructed to have their child study the poster for 3 minutes and then to hide it from the child’s view and have the child generate as many of the animals he or she could in a 10-minute period. Mothers recorded correct answers on the form. They were told, “We are interested in how well your child can do on his or her own, but some children need help from parents some points along the way.” Mothers were told to “feel free to talk with your child at any time, but just don’t give him or her the answers.” The experimenter then turned on a tape recorder (placed on the table directly in front of the mother and child) and left the room, allowing the mother and child to complete the task without direct observation.

Audiotapes of the mother-child conversations were later transcribed, independently checked for accuracy, and then coded by research assistants unaware of the hypotheses of the study. Because coders could not see the children, they had no information regarding the child’s diagnosis or level of physical impairment. Event coding...
procedures were employed for all mother and child utterances using a set of mutually exclusive and exhaustive coding categories (see Table I). As shown in the table, maternal verbalizations were coded into three general classes (i.e., help-giving responses, non-help-giving responses, and responses to child answers). For example, the following maternal response to a child’s incorrect answer, “No, think of another zoo animal,” would receive two codes: “indicates answer is wrong” and “general clue.” The child verbalizations were coded in terms of types of help seeking, the correctness of child answers, and other kinds of statements. The specific codes were correct answer, incorrect answer, request for help, says “Doesn’t know,” other task-relevant statements, and task-irrelevant statements. Thus, the child response, “Dog. How many more do I need?” would be coded “correct answer” and “task-relevant statement.” To assess reliability, two raters independently coded the transcripts of parent-child interactions. Interrater agreement (agreements/agreements plus disagreements) was 96%.

**Results**

Examination of the frequency of maternal verbalizations in the memory game task revealed that three of the parental behavior codes occurred with too low frequency for analysis: naming the animal, criticism, and task-irrelevant statements ($M < .50/session$). To reduce the number of variables for analysis, we ran a principal components analysis with varimax rotation on the frequencies of the maternal verbalization codes. The variables in this analysis were the frequency with which each coding category occurred. Examination of the scree plot revealed that the five-factor solution was optimal. This solution accounted for approximately 54% of the variance in maternal behavior. The factor loadings and the variance accounted for by each factor are presented in Table II. Codes were assigned to the factor with the highest loading, with one exception. Praise, which loaded on both the second and the third factors, was assigned to Factor 3 on the basis of face validity. The first factor, Structure and Rule

### Table I. Coding System for Mother-Child Interactions

**Statements and descriptions**

I. Maternal statements
   A. Help-giving
      1. General clues (e.g., “Think of animals at the zoo.”)
      2. Specific clues (e.g., “What goes quack?”)
      3. Naming the animal (giving the answer)
   B. Non-help-giving
      1. Information/instructions/rules (“This is my list of the animals to check off.” “I can’t tell you the answers.” “You got 10 so far.”)
      2. Restrictions/commands (“Don’t look at the clock.” “Don’t look at my list.”)
      3. Questions (e.g., “What did you say?”)
      4. Encouragement/sympathy (“You can do it!”)
      5. Request response/answer (“Think! What else was on the board?”)
      6. Other task-relevant statements
      7. Task-irrelevant statements
   C. Responses to children’s answers
      1. Indicates answer is wrong
      2. Criticism
      3. Indicates answer is correct
      4. Praise

II. Child statements
   A. Correct answers
   B. Incorrect answers
   C. Request for help
   D. Says “doesn’t know”
   E. Other task-relevant statements
   F. Task-irrelevant statements

### Table II. Principal Components Analysis on Frequencies of Memory Game Codes: Maternal Data

<table>
<thead>
<tr>
<th>Code</th>
<th>Structure and Rule Setting</th>
<th>Prompt for Answer</th>
<th>Specific Clues/Positive Feedback</th>
<th>Questions</th>
<th>General Clues</th>
</tr>
</thead>
<tbody>
<tr>
<td>General clues</td>
<td>.06</td>
<td>.11</td>
<td>-.08</td>
<td>-.05</td>
<td>.82</td>
</tr>
<tr>
<td>Specific clues</td>
<td>-.17</td>
<td>-.20</td>
<td>.73</td>
<td>-.11</td>
<td>.00</td>
</tr>
<tr>
<td>Information/instructions/rules</td>
<td>.62</td>
<td>.44</td>
<td>-.06</td>
<td>-.07</td>
<td>-.02</td>
</tr>
<tr>
<td>Restrictions/commands</td>
<td>.65</td>
<td>.11</td>
<td>.10</td>
<td>.32</td>
<td>-.04</td>
</tr>
<tr>
<td>Questions</td>
<td>.25</td>
<td>.14</td>
<td>.13</td>
<td>.73</td>
<td>.03</td>
</tr>
<tr>
<td>Encouragement/sympathy</td>
<td>.19</td>
<td>.81</td>
<td>-.07</td>
<td>-.13</td>
<td>.08</td>
</tr>
<tr>
<td>Request response/answer</td>
<td>.12</td>
<td>.63</td>
<td>.03</td>
<td>.42</td>
<td>.12</td>
</tr>
<tr>
<td>Other task-relevant</td>
<td>.28</td>
<td>.18</td>
<td>.61</td>
<td>.29</td>
<td>.40</td>
</tr>
<tr>
<td>Indicates answer wrong</td>
<td>.63</td>
<td>-.31</td>
<td>.10</td>
<td>.07</td>
<td>.43</td>
</tr>
<tr>
<td>Indicates answer correct</td>
<td>.24</td>
<td>.04</td>
<td>.72</td>
<td>-.01</td>
<td>-.08</td>
</tr>
<tr>
<td>Praise</td>
<td>-.23</td>
<td>.40</td>
<td>.38</td>
<td>.00</td>
<td>-.09</td>
</tr>
<tr>
<td>Percentage variance</td>
<td>17.6</td>
<td>11.2</td>
<td>8.7</td>
<td>8.5</td>
<td>7.6</td>
</tr>
</tbody>
</table>
Setting, was made up of information/instructions/rules, restrictions/commands, and indicates answer is wrong; the second factor, Prompt for Answer, was made up of request response/answer and encouragement/sympathy; and the third factor, Specific Clues/Positive Feedback, was made up of specific clues, other task-relevant statements, indicates answer is correct, and praise. The fourth and fifth factors were made up of only one code each—Questions and General Clues—respectively.

Analyses of covariance on the factor scores (unit weighting) controlling for child age revealed significant effects of group membership for Structure and Rule Setting, F(2, 76) = 3.81, p < .05, and for General Clues, F(2, 76) = 4.36, p < .05, and a near significant effect for Prompt for Answer, F(2, 76) = 2.47, p < .09. Follow-up t tests showed that in all cases, mothers of children with more severe arthritis engaged in these behaviors significantly more frequently than mothers in the other two groups (see Table III). There were no significant group differences for specific clues/positive feedback or for questions. There were also no significant group differences on the frequency of any of the child responses: correct answers, incorrect answers, requests for help, says “doesn’t know,” other task-relevant statements, and task-irrelevant statements.

To find any significant differences between the groups in specific patterns of maternal responses to child behavior, we conducted a series of sequential analyses. Three types of child behaviors were examined: help seeking (i.e., direct requests for help and child stating that he or she does not know answer), correct answers, and incorrect answers. Maternal verbalizations were coded into six categories. These were the five categories already listed with one modification: the specific clues/positive feedback composite was broken into its two components, specific clues (i.e., specific clues and other task-relevant statements) and positive feedback (i.e., indicates answer is correct and praise), because although they loaded on the same factor in the principal components analysis, they conceptually tap different aspects of maternal behavior.

The sequential analyses involved comparing across the three diagnostic groups the probability of occurrence of the maternal verbalizations in response to specific child verbalizations, controlling for base rate differences between the groups in the occurrence of the maternal behaviors. Thus, the analysis for the sequence “child help seeking → maternal prompt for answer” involved comparing across the three groups the probability of the “maternal prompt for answer” category following the “child help seeking” category, statistically controlling for the baseline probability of “maternal prompt for answer” responses. This ensured that the differences between the groups were due to differences in sequence, not the base rate of the maternal behavior. That is, in the example, the sequence “child help seeking → maternal prompt for answer” could be more frequent in one group than the others because the overall frequency of “maternal prompt for answer” was higher in that group, regardless of the child behavior that preceded it. In this case, the findings tell us little about maternal responses to child behavior—they simply demonstrate group differences in the overall frequency of prompting for answers. By controlling for group differences in the base rate of “maternal prompt for answer,” we could determine if group differences in responses to specific child behaviors were significant. This was accomplished by running analyses of covariance in which the independent variable was group membership, the dependent variable was the conditional probability of a specific maternal response given a specific antecedent child behavior, and the control variables were child age and the base rate probability of the maternal response.

Table IV presents the probabilities for which the variable coded as structure and rule setting, prompt for answers, positive feedback, specific clues, general clues, and questions. Each base rate column adds to approximately 1.00. The numbers in the remaining nine columns are the conditional probabilities that each of the six maternal behaviors followed one of three antecedent child behaviors:

---

Table III. Mean Frequencies of Maternal Behaviors (Factor Scores) by Health Status

<table>
<thead>
<tr>
<th>Factor</th>
<th>Control M (SD)</th>
<th>Milder M (SD)</th>
<th>More severe M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Structure and Rule Setting*</td>
<td>12.98 (6.82)</td>
<td>14.79b (9.53)</td>
<td>18.84b (10.38)</td>
</tr>
<tr>
<td>2. Prompt for Answer**</td>
<td>5.29b (5.55)</td>
<td>6.26b (6.05)</td>
<td>10.47b (10.63)</td>
</tr>
<tr>
<td>3. Specific Clues/Positive Feedback</td>
<td>58.83 (31.53)</td>
<td>44.47 (33.53)</td>
<td>46.74 (24.41)</td>
</tr>
<tr>
<td>4. Questions</td>
<td>3.93 (3.88)</td>
<td>2.68 (2.94)</td>
<td>4.11 (3.05)</td>
</tr>
<tr>
<td>5. General Clues*</td>
<td>4.98 (4.32)</td>
<td>7.11b (7.72)</td>
<td>11.47b (11.92)</td>
</tr>
</tbody>
</table>

*Means with different superscripts differed significantly (p < .05).
**F test significant, p < .05; ***F test, p < .10.
help seeking, incorrect answers, and correct answers. These columns add up to approximately 1.00 as well. Therefore, by looking at a given row in the table, one can determine whether the probability of a given maternal behavior was higher or lower when it was preceded by a specific child behavior. Thus, for example, regardless of diagnostic group, specific clues were most likely to be given in response to child help seeking, and positive feedback was most likely to be given in response to child correct answers.

The significance tests for the conditional probabilities involved statistically controlling for the effects of any base rate differences. The base rate differences differ from the frequency analyses presented earlier because they control for the overall level of maternal verbalizations (i.e., they represent the proportion of the total number of maternal verbalizations that fall into the various categories). For ease of interpretation, the means presented in the table are the raw probabilities, not adjusted for child age or base rate.

Examination of Table IV shows that whether the child requested help, made a mistake, or gave a correct answer, a common maternal response was to give a specific clue. This was a function of the high base rate of this behavior. Three maternal responses were more closely tied to child antecedents: mothers responded to requests for help with general clues; responded to mistakes with structure and rule setting; and responded to correct answers with positive feedback.

Examination of the table also reveals differences between the diagnostic groups. Because all of the observed differences appeared to be between the more severe group and the other two groups (as was also the case for the frequency analyses), the analyses of covariance were rerun with only two levels of the group independent variable to increase power (i.e., more severe vs. milder and controls combined). The base rate statistics showed that mothers in the severe arthritis group were less likely to use specific clues than were mothers in the other two groups, $F(1, 77) = 5.45, p < .05$. Mothers in the severe group were more likely to use general clues than mothers in the other two groups, $F(1, 77) = 4.64, p < .05$.

Results of sequential analyses showed that mothers in the more severe group were significantly more likely to respond to correct answers with positive feedback, $F(1, 76) = 4.36, p < .05$, and to respond to incorrect answers with structure and rule setting, $F(1, 75) = 4.20, p < .05$, than mothers in the other two groups. There were no group differences in responses to help giving or for sequences involving prompting for an answer and questions.

**Discussion**

Together, the results of this study confirm, at least partially, the hypotheses regarding the directiveness of mothers of children with more severe arthritis and point to other, more subtle characteristics of their interaction styles. To summarize, mothers of children with more severe arthritis were more directive of their children's behavior during the task than mothers from the milder arthritis and healthy groups. They provided more general clues, engaged in more statements that prompted the child for an answer, and showed a greater number of statements coded as structure and rule setting. Because they did not differ from the other mothers in the frequency of general questions and positive feedback/specific clues (the remaining two categories), they therefore showed an overall level of directiveness that surpassed that of mothers in the other two groups. Moreover, these group differences were not simply responses to group differences in child behavior—children in the three groups did not differ on their level of success on the task, nor in how frequently they asked for help or showed off-task behavior.

There are several possible explanations for the direc-
tiveness of mothers of children with more severe arthritis. First, given the medical condition of their child, they may have been more anxious about the task than mothers in the other two groups; that maternal anxiety might have led to higher levels of directiveness. Anxious mothers may have a hard time sitting and watching their child have difficulties on such a task. If they perceive that the child might fail, they may be particularly likely to intervene to protect their child from disappointment, shame, or frustration. Alternatively, this group of mothers may have felt the need to demonstrate their parenting competence in the current setting and therefore engaged in higher levels of instructional behavior for the benefit of the researchers.

A second possibility is that mothers of children with more severe arthritis may have felt that their child needed more help than did mothers of children in the other groups, therefore motivating a high level of directive behavior. Because children with more severe arthritis require greater assistance from their parents in daily physical care, their mothers may overgeneralize this involvement to situations having nothing to do with arthritis, such as the cognitive task in this study. Thus, children with physical deficits may be treated as if they have cognitive or motivational deficits as well. Because mothers of children with more severe arthritis often are responsible for carrying out extensive treatment regimens with their children that involve repetitive and sometimes painful physical exercises, they may overgeneralize the high levels of involvement required in these tasks to other kinds of teaching tasks. It may be difficult for such mothers to sit back and let the child struggle with a difficult task on his or her own.

Despite the reasons behind the high levels of maternal directiveness in the more severe arthritis group, these findings are consistent with the literature suggesting that parents of children with chronic illness are at risk for more overprotective, overcontrolling, or intrusive interaction styles that may interfere with the child’s developing autonomy (e.g., Thomasgard, Shonkoff, Metz, & Edelbrock, 1995). To our knowledge, this is the first study to document this style in this particular pediatric population.

A second general finding of this study was that the feedback and directions provided by mothers of children with more severe arthritis in the experimental task were more vague and less specific than those offered by other mothers. Compared to mothers of healthy children and children with milder arthritis, mothers of children with more severe arthritis provided more general and fewer specific clues. Although this difference could have many possible causes, a likely explanation is that higher levels of maternal anxiety in these mothers might have interfered with effective teaching.

The final major finding of the study—that mothers of children with more severe arthritis approached the task in a more evaluative way (i.e., responding to correct answers with positive feedback and to incorrect ones with structure and rule setting) was unexpected. This pattern, however, is consistent with an overprotective or directive style. Unlike mothers in the other groups—who tended to respond to both right and wrong answers by offering more specific clues—mothers in the more severe group made an effort to consistently follow correct and incorrect responses with positive and negative feedback. This approach to the task may have made the memory “game” less fun for the children with severe arthritis, because their mothers treated the interaction more like an assessment of the child’s performance than an enjoyable game to play together.

Mothers of children with more severe arthritis might show this evaluative style for a variety of reasons: (a) anxiety about the child’s performance, (b) a view that due to motivational or ability deficits the child needs to be more actively motivated, or (c) an overgeneralization of directive teaching styles shaped in repetitive physical therapy sessions. It is also possible that the mothers were responding to subtle cues in their children’s behavior that suggested they needed more direction, feedback, or rule setting from the mother.

Regardless of its origins, an emphasis on evaluation versus task mastery may have significant implications for the child’s later development. In numerous studies in the achievement area, Dweck (1991), Nicholls (1984), and other researchers have shown that children who approach problem situations with a greater focus on performing well for others than on mastering the material often choose easy tasks to avoid looking bad and are more likely to show helplessness in the face of failure. By overemphasizing evaluation, mothers of children with more severe arthritis may be subtly conveying to them the importance of looking good versus learning, which could interfere with future development in the areas of mastery motivation and coping with failure (e.g., Boggio, 1987; Deci & Ryan, 1985). Moreover, the high frequency of maternal feedback may make the child feel inadequate about his or her ability to complete the task on his or her own, jeopardizing the development of feelings of competence, control, and autonomy (Ryan & Deci, 2000).

The results of this study should not be interpreted to imply that these more directive parents are in any way “bad” parents. On the contrary, as Anderson and Coyne illustrated in their studies of “misguided helping” or “mis-
carried support” in the families of chronically ill children as well as families of adult patients (1993; Coyne, Wortman, & Lehman, 1988), the most well-intentioned, invested, and supportive family members can inadvertently interact with the patient in ways that become detrimental.

The fact that only mothers of children with more severe arthritis showed the highly directive behavior pattern is consistent with other studies showing that the psychosocial consequences of JRA vary with disease severity (e.g., Billings et al., 1987) and with the notion that problematic parenting may be influenced by the perceived vulnerability of the child (Thomasgard & Metz, 1997). Because many of the children in the milder arthritis group had only a few active joints involved, their self-care regimen may have differed little from that of healthy children and therefore worked against the development of a highly directive maternal style.

Many of the speculations raised in this article assume that the child’s pattern of symptoms has been relatively stable and that the observed arthritis symptoms are not transient anomalies. Because we do not have long-term data on the children’s symptoms, however, the actual representativeness of their current symptoms or the patterns of mother-child interaction cannot be determined.

The applicability of these findings also is limited by the relatively small sample of children with arthritis and the smaller subgroup of children with severe symptoms, all of whom were obtained from a single rheumatology clinic. Replication with a larger sample of arthritis patients is needed. Future studies also would be strengthened by obtaining independent estimates of joint function and disease severity from two or more medical professionals, to allow for estimates of reliability. Future research also is needed to determine if similar styles are found in mothers of children with other disabling chronic diseases.

To provide data on some of the interpretations offered here, future studies should include not only observation of maternal behavior but also measures of mothers’ beliefs and attitudes about their children. Given the possible overgeneralization of behavior patterns from the physical therapy or motor skill training contexts to other, nonrelated contexts, it would be informative to observe mothers and children across multiple settings to determine any consistency across settings. Finally, the implications of these interactional patterns for the psychosocial development of children should be studied, particularly in regard to motivational issues such as goal setting and learning goals, as well as the development of autonomy, particularly when these children reach adolescence.

**Acknowledgments**

This project was supported in part by a grant from the Gulf Coast Chapter of the Arthritis Foundation. We thank Gaye Koenning, MS, L. Kay Bartholomew, EdD, and the staff of the Texas Children’s Hospital Pediatric Rheumatology service for their invaluable assistance in conducting this study. We also thank Pat Chow, Dina Dubois, and Jeanette Griffin for their help in data collection and scoring.

**References**


