Sibling Interactions of Hyperactive and Normal Children and Their Relationship to Reports of Maternal Stress and Self-Esteem

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Forty-six hyperactive and normal boys were observed while interacting with their siblings in an unstructured play and mother-supervised task situation. Few behavioral differences were noted between identified hyperactive children and their reportedly non-problem siblings with both showing equally high rates of negative behavior. Relative to normal siblings, hyperactive sibling dyads showed significantly higher levels of conflict. Negative behavior in the hyperactive-child/sibling interaction was unrelated to either the sex or ordinal position (younger versus older) of the sibling. However, hyperactive sibling dyads which included a young hyperactive child showed more negative behavior during the supervised-task situation relative to hyperactive sibling dyads which included an older hyperactive child. Maternal reports of stress and parenting self-esteem were related to the hyperactive-child/sibling interaction. The mothers of hyperactive siblings who interacted more during play reported higher levels of parenting self-esteem and lower levels of stress related to both their child and themselves. During the supervised-task situation, negative behavior in the hyperactive child dyad was highly correlated with mothers' reports of child-related stress. These findings are discussed in terms of the need to develop intervention programs that focus on the management of sibling relationships rather than individual children, and for research examining possible continuities between the sibling and peer relationship difficulties experienced by hyperactive children.

Although children are known to spend significant amounts of time with their siblings (Abramovitch, Corter, & Lando, 1979), relatively little systematic attention has been given to the study of sibling relationships in either normal children (Hartup, 1979), disturbed children (Mash & Mercer, 1979) or disturbed families (Kurdek, 1981). To the extent that contacts with siblings play a unique role in both child development and family functioning (Bank & Kahn, 1982; Lamb & Sutton-Smith, 1982), sibling relationships may be especially significant for populations of hyperactive and/or socially aggressive children where sibling conflict is known to be high (Patterson, 1976).

Sibling interaction between normal children close in age has been characterized as involving associative activity and aggression. Research has shown that older siblings may stimulate younger siblings to activity and exploration (Samuels, 1980), and may serve as models (Lamb, 1976), caretakers (Bryant, Note 1; Whiting & Whiting, 1975), and teachers (Cicerelli, 1976) for their younger siblings. In retrospective accounts, sibling...
relationships have been characterized as aggressive, and early violence towards siblings appears to be a better predictor of reported adult violence than early aggression with adults (Gully, Dengerink, Pepping & Bergstrom, Note 2). Additionally, children tend to perceive the use of physical punishment in the family as emanating more from the sibling than the parent (Bryant, Note 1). Reports by parents also suggest that verbal and physical aggression towards siblings is much more prevalent and problematic than aggression towards peers (Robinson, Eyberg, & Ross, 1980). In fact, it has been theorized that successful control of aggressive motivations is acquired within the framework of aggressive sibling encounters (Hartup, 1976). In light of these observations of normal populations, the areas of potential disruption associated with the sibling role in families of hyperactive and/or socially aggressive children are numerous.

Studies of sibling interaction with hyperactive children are virtually non-existent. In one study which examined 57 environmental variables surrounding the hyperactive child (Paterhite & Loney, 1980), only four of these reflected sibling relationships: birth order, number of children in the family, shares room and shares bed. However, related investigations into the peer relationships of hyperactives (Campbell & Paulaskas, 1979; Milich & Landau, 1982; Pelham & Bender, 1982; Whalen, Henker, Collins, McAuliffe, & Vaux, 1979) suggest that hyperactive children exhibit high amounts of off-task behavior in group situations, inappropriate social communications, domineering and aggressive interpersonal behavior, and a high likelihood of being rejected by their peers. Although the direct generalization of these findings from studies of peer relationships to relationships with siblings is not known, the view that similar problems with siblings exist, and in fact may serve as antecedents for later peer disturbances, is consistent with epigenetic theories of socialization that assume social system interdependence (Hartup, 1979).

Studies of children showing acting-out types of problems (although not specifically labeled hyperactive) have compared the socially aggressive and negative behavior exhibited by "non-problem" siblings with those of the identified problem child. In general, high correlations between siblings' rates of negative behavior have been reported (Arnold, Levine, & Patterson, 1975; Mash & Mercer, 1979; Patterson, 1976). Welner, Welner, Stewart, Palkes and Wish (1977) reported a greater incidence of hyperactivity (26%) in siblings of hyperactives relative to control siblings (9%), although hyperactives, but not siblings, were reported to present more antisocial symptoms than control siblings. In a follow-up study of men who had been diagnosed 20-25 years earlier as hyperactive, Borland and Heckman (1976) compared the later adjustment of this group with their siblings and found that the siblings generally experienced more successful life adjustment and fewer symptoms of hyperactivity at follow-up. Owen, Adams, Forrest, Stolz and Fisher (1971) reported that emotional instability in the homes of children labeled as MBD appeared to have a much more detrimental effect on the identified problem child than on his same-sex sibling.

Given the general lack of information concerning the sibling relationships of hyperactives the present study had several purposes. First, the interactions of hyperactive children and their siblings were observed in order to compare the behaviors exhibited by identified hyperactive children with their reportedly non-problem siblings. Based on previous findings with other populations of disturbed children, it was predicted that hyperactives and their siblings would show comparable rates of negative behavior. However, no specific predictions were made in relation to other aspects of the interaction. Hyperactive-child/sibling interactions were then examined in relation to those of a comparison group of normal target children and their siblings. Since prior research has found that the behavior of hyperactives varies as a function of situational structure during mother-child interactions (Cunningham & Barkley, 1979; Mash & Johnston, 1982), siblings were observed while playing alone and during a supervised-task situation in which mothers were present but non-active. Based upon the findings of previous studies (Arnold et al., 1975; Mash & Mercer, 1979; Patterson, 1976), it was predicted that hyperactive sibling dyads would exhibit more conflict and less prosocial interaction relative to normals and that these group differences would be greater under more demanding task circumstances (Cunningham & Barkley, 1979; Mash & Johnston, 1982). Finally, the relationships between behaviors occurring during the sibling interaction and maternal reports of stress related to parenting and parenting self-esteem were also examined. Since the management of sibling conflict is frequently reported as a problem and source of stress by mothers of hyperactive children (Barkley, 1981a; Ross & Ross, 1982) it was predicted that observed conflict in the sibling interactions of hyperactives would be positively correlated with mothers' reported stress and inversely related to their parental self-esteem.
SIBLING INTERACTIONS

Method

Subjects

Twenty-three hyperactive and 23 normal boys (target children) and their siblings participated. Eleven of the siblings of hyperactives and 12 of the siblings of normals were older than the target child. The mean ages and age differences for the hyperactive and normal sibling pairs are presented in Table 1. Ten of the siblings in each group were male, and equivalent proportions of male and female siblings in each group were older or younger than the target child (older siblings of hyperactives = 6 females and 5 males; younger siblings of hyperactives = 7 females and 5 males; older siblings of normals = 7 females and 5 males; younger siblings of normals = 6 females and 5 males).

Table 1.

Mean Age in Months, Mean Age Differences and Mean Peabody Picture Vocabulary Test (PPVT) Scores for Hyperactive and Normal Sibling Pairs

<table>
<thead>
<tr>
<th></th>
<th>Hyperactive Dyads</th>
<th>Normal Dyads</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N = 23 )</td>
<td>( N = 23 )</td>
</tr>
<tr>
<td>Age</td>
<td>X</td>
<td>S.D.</td>
</tr>
<tr>
<td>Target Child</td>
<td>79.9</td>
<td>24.6</td>
</tr>
<tr>
<td>Sibling</td>
<td>85.7</td>
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<tr>
<td>Age Difference</td>
<td>31.3</td>
<td>14.2</td>
</tr>
<tr>
<td>PPVT Score</td>
<td>109.9</td>
<td>15.3</td>
</tr>
<tr>
<td>Target Child</td>
<td>112.9</td>
<td>14.7</td>
</tr>
</tbody>
</table>

All target children were boys. Ten siblings in each group were boys, 13 were girls.

T-Tests revealed no significant age difference between hyperactive and normal target children or their siblings \( (p > .05) \).

Hyperactive and normal sibling pairs were comparable with respect to ordinal position and total number of children in the family. Hyperactive children who were older than their siblings were all first born children, and 10 of the 11 older normal target children were first borns. For 33 of the families (16 hyperactives and 17 normals) the sibling pair represented the only two children. Almost all families were of middle or upper-middle socio-economic status as determined by the Hollingshead Four-Factor Index of Social Status (Hollingshead, 1975).

Hyperactive boys and their families had been referred to an ongoing research project of family interactions (Mash & Johnston, 1982) by physicians, psychologists and psychiatrists. Following the general guidelines suggested by Barkley (1982, in press), to be included in the study as hyperactive children had to meet several criteria. These included a diagnosis of hyperactivity by the referral agent, maternal report of a developmental history of hyperactivity with onset by three years, and maternal ratings of at least two standard deviations above the normative mean on the Conners' Abbreviated Rating Scale (Conners, 1972) and the Werry-Weiss-Peters Activity Scale as adapted by Routh, Schroeder, and O'Tuama (1974). Hyperactive children who were receiving stimulant medication \( (N = 6) \) were withdrawn from this medication at least 24 hours prior to the observed sibling interaction. Although practical constraints did not permit the collection of hyperactivity checklist ratings for siblings of hyperactives or normals, detailed interviews with mothers revealed an absence of reported hyperactivity among siblings of hyperactives. The referred hyperactive child was the primary focus of parental concern in all families and none of the siblings had ever been diagnosed as hyperactive or received any individual treatment for behavioral problems.

Normal boys, their mothers and siblings were recruited through contacts with schools and newspaper notices. All normal target children were rated within the normal range on both the Conners and Werry-Weiss-Peters scales and neither the target boys nor their siblings were reported by their mothers to be experiencing any medical or behavioral difficulties. Almost all children in the study were of average or above average intelligence (see Table 1) as assessed by the Peabody Picture Vocabulary Test - Form A (Dunn, 1965), and none showed any gross neurological, sensory or motor impairments.

Procedure

Sibling interactions were observed during unstructured play with the mother absent, and during a supervised-task situation where the mother was present but non-interactive. All interactions were observed in a 5.6 x 5.9-m playroom equipped with microphones and one-way observation mirrors which concealed remotely-controlled cameras for videotaping. The playroom contained living room furniture, a child-sized table and chairs, and an assortment of age-appropriate toys including coloring books and crayons, wooden blocks, LEGO blocks, toy trucks, and an Etch-a-Sketch. All children had previously spent a half-hour in the room interacting individually with their mothers and were well habituated to the playroom.

For the unstructured play situation, the two children were left alone in the playroom for ten minutes with the instruction to "play together as you would at home and use any of the toys that you like," and were told that their mother would return shortly. Following the play situation, the mother briefly re-entered the room, instructed the

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children to put away the toys they had been playing with, and told the children that she would be right back with some other things for them to do. The mother left the room briefly and then returned with a puzzle task which the children were to work on cooperatively. Several two-piece puzzles were used in this task and the mother gave each child a stack containing in mixed-up order, one of the pieces from each puzzle. The mother explained the task and instructed the children to work together to complete all the puzzles. While the children were working on the task the mother remained in the room but sat on the opposite side of the room from the children and, as previously instructed, occupied herself reading magazines. A 15-minute period that included the time spent by children putting away toys and working on the puzzle task was designated as the supervised-task situation, in that the mother was available but non-interactive during the time that the children had been requested to work on a task together. Since the first part of the supervised-task situation required the children to put away the toys they had been playing with, a standard sequence was used in which unstructured play always preceded the supervised-task situation.

Measures of Child Behavior

All interactions between target children and their siblings were videotaped and later coded using a slightly modified form of the Response-Class Matrix (Mash, Terdal, & Anderson, 1973, 1981). This system was originally designed to code dyadic interactions between mothers and their children. To code sibling interactions the same procedures were utilized. However, the code categories were modified to include behaviors that more appropriately reflected dyadic interaction between children.²

Although the modified code included 10 child behavior categories (command, command-question, compliance, competing behavior, independent play, negative, praise, question, interaction and no response), several of these behaviors (e.g., praise, compliance) occurred infrequently (less than 5% of the observed intervals) and were not included in the analyses. Four frequently occurring behavior categories that accounted for most of the observed behavior (approximately 80% of the observed intervals) during the sibling interaction are considered in the current report. These are: directiveness, independent play, interaction, and negative. Brief descriptions for each of these categories are given below. More detailed definitions can be found in Mash, Terdal, and Anderson (1981) and Mash and Johnston (1982).

Directiveness — The child issues either a command (e.g., give me that toy) or a command question (e.g., why don't you give me that toy?) to his/her sibling.

Independent Play — The child does not attempt to interact with his/her sibling, but plays with or manipulates toys or objects in the room.

Interaction — The child initiates a neutrally valenced and non-directive interaction with his sibling either verbally, physically, or by playing with the same object.

Negative — The child exhibits either a verbal statement or nonverbal action indicating anger, refusal, discouragement, or noncompliance towards their sibling.

All interactions were coded from videotape by four trained and experienced paid female observers, with the unstructured play and supervised-task situations coded separately. All interactions were coded by two of the observers and interobserver agreement was calculated using number of agreements for occurrence divided by the number of agreements plus number of disagreements. Interval-by-interval occurrence agreement measures were at or above 80% for both overall agreement and for the individual behavior categories.

Maternal Report Measures

Two questionnaires completed by the mothers allowed examination of the relationships between behavior during the sibling interaction and maternal self-ratings. These questionnaires assessed, respectively, mothers' parenting self-esteem (Parenting Sense of Competence Scale - PSOC, Gibaud-Wallston and Wandersman, Note 3), and mothers' reports of stress associated with being a parent (Parenting Stress Index - PSI, Burke & Abidin, Note 4). The PSOC contains two subscales, the first assessing the value placed on being a mother and the degree of comfort derived from this role ("valuing/comfort"), and the second reflecting the degree to which a mother feels she has acquired the skill and understanding necessary to be a good parent ("skill/knowledge"). The PSI is divided into four domains reflecting varying sources of possible stress associated with the mother-child relationship. The PSI - Child Domain assesses the mother's perception of such things as her child's adaptability, acceptability, demandingness, mood and distractibility. The PSI - Mother/Child Relationship is a rating of the de-

²The manual and category definitions for the Response-Class Matrix, as modified to code child-child interactions may be obtained by writing the first author. With this code system, the behavior of each member of the dyad is sampled every 15 seconds. A real-time signal was superimposed directly on the videotaped interactions using a date-time generator (RCA, MRL Edcor) and this permitted the monitoring of 15-second intervals.

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Table 2.
Mean Behavior for Hyperactive and Normal Children and Their Siblings and Pearson Correlations Between Target Child and Sibling Behavior

<table>
<thead>
<tr>
<th></th>
<th>Target Child (X)</th>
<th>Sibling (X)</th>
<th>Dyad (X)</th>
<th>(r)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Play</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directiveness</td>
<td>6.0</td>
<td>5.0</td>
<td>5.8</td>
<td>-.15</td>
</tr>
<tr>
<td>Independent Play</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play</td>
<td>26.0</td>
<td>35.7</td>
<td>31.1</td>
<td>.66**</td>
</tr>
<tr>
<td>Interaction</td>
<td>38.2</td>
<td>32.5</td>
<td>35.6</td>
<td>.67**</td>
</tr>
<tr>
<td>Negative</td>
<td>7.9</td>
<td>11.3</td>
<td>9.9</td>
<td>.61**</td>
</tr>
<tr>
<td>Supervised Task</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directiveness</td>
<td>5.8</td>
<td>4.1</td>
<td>5.2</td>
<td>.24</td>
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<td>Independent Play</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play</td>
<td>24.5</td>
<td>24.6</td>
<td>24.5</td>
<td>.35*</td>
</tr>
<tr>
<td>Interaction</td>
<td>49.2</td>
<td>42.0</td>
<td>45.9</td>
<td>.50**</td>
</tr>
<tr>
<td>Negative</td>
<td>7.0</td>
<td>9.8</td>
<td>8.7</td>
<td>.70**</td>
</tr>
</tbody>
</table>

Hyperactives \((N = 23)\)

<table>
<thead>
<tr>
<th></th>
<th>Target Child (X)</th>
<th>Sibling (X)</th>
<th>Dyad (X)</th>
<th>(r)</th>
</tr>
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<tbody>
<tr>
<td><strong>Play</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directiveness</td>
<td>6.4</td>
<td>6.2</td>
<td>6.4</td>
<td>.19</td>
</tr>
<tr>
<td>Independent Play</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play</td>
<td>34.2</td>
<td>29.4</td>
<td>32.1</td>
<td>.59**</td>
</tr>
<tr>
<td>Interaction</td>
<td>45.6</td>
<td>44.4</td>
<td>45.2</td>
<td>.60**</td>
</tr>
<tr>
<td>Negative</td>
<td>2.7</td>
<td>1.7</td>
<td>2.4</td>
<td>.16</td>
</tr>
</tbody>
</table>

Normals \((N = 23)\)

*\(p<.05\), **\(p<.01\).

1Numbers in table refer to the mean proportion of observed intervals in which each behavior occurred.
2Dyad scores represent an arithmetic average of the target child and sibling's behavior (also see text).
3Pearson correlations between target child and sibling behavior.

gree to which the mother finds interactions with her child to be rewarding or nonrewarding. The **PSI - Mother Domain** describes maternal feelings with regard to depression, restrictions imposed by the parental role, social isolation, self-blame, sense of competence, attachment to the child, marital relationship and health. The fourth domain, **PSI - Situational Characteristics**, encompasses stress related to situational factors (e.g., number of children, unemployment, problems with relatives) and life events (e.g., divorce, major illness). The **PSOC** and **PSI** have been shown to possess satisfactory reliability (internal consistency and test-retest), and preliminary validity information has also been reported for mothers of both normal (Gibaud-Wallston & Wandersman, Note 3; Burke & Abidin, Note 4) and disturbed children (Mash & Johnston, 1983).

**Results**

The mean proportions of intervals in which each child behavior occurred during the play and supervised-task situations are presented in Table 2, for target children and their siblings. Since an initial question concerned possible differences in behavior between children identified as hyperactive and their siblings, correlated \(t\)-tests between target child and sibling behavior were carried out for each behavior category. There were only two significant differences within sibling dyads for either the hyperactive or normal group. During play hyperactive children exhibited less independent play than their siblings, \(t(22) = 2.07, p<.05\), and during the supervised-task situation they initiated more interaction than their siblings, \(t(22) = 2.81, p<.01\). No other differences within sibling dyads were found for either the normals or hyperactives.

Table 2 also includes the Pearson correlations between target child and sibling behavior. The correlations between target children and siblings with respect to the amounts of independent play and interaction exhibited during both the play and supervised-task situations were all statistically significant. Additionally, the rates of negative behavior exhibited by identified hyperactive children and their siblings were also highly correlated for both the play \((r = +.61, p<.01)\) and supervised-task situations \((r = +.70, p<.01)\). Correlations between siblings in their amounts of directiveness were low and nonsignificant, as were those for the amounts of negative behavior exhibited by normals.

Given the almost complete absence of significant differences between target children and siblings in both groups, the target child and sibling scores for each behavior category were arithmetically averaged to produce a dyad score (see Table 1). It was felt that the dyad scores reflected the total amount of each type of behavior that occurred during the sibling interaction. These dyad scores were then used in further analyses examining the effects of diagnosis and situational context on sibling interactions.

To compare the hyperactive and normal dyads and the play versus supervised-task situations, a two (hyperactive versus normal dyads) \(\times\) two (play versus supervised-task situations) repeated
measures analysis of variance was carried out for each behavior category. The only significant difference between hyperactive and normal sibling dyads was with respect to the amounts of negative behavior in the interaction, \( F(1,44) = 7.87, p < .01 \), where hyperactive dyads showed significantly more negative behavior than normals. There were two main effects associated with situational structure. As would be expected, all sibling dyads engaged in more independent play during play, \( F(1,44) = 4.74, p < .05 \), and interacted more during the supervised-task situation, \( F(1,44) = 4.74, p < .05 \). These effects of situational structure were independent of diagnosis and there were no significant diagnosis by situation interactions.

Since the only significant difference for hyperactive versus normal sibling dyads was with respect to their amounts of negative behavior, further analyses were carried out to examine the relationships between negative behavior and other characteristics of the hyperactive sibling dyad. The correlations between sex of sibling, ordinal position of sibling (younger or older than the target child), and age, and the amount of child and sibling negative behavior were examined separately for the play and supervised-task situations. These correlations are shown in Table 3. Point-biserial correlations between sex of the sibling and negative behavior in the dyad, and ordinal position of the sibling and negative behavior (see Table 3) showed no significant relationships for either of these variables.

Table 3. Correlations Between Hyperactive Child and Sibling's Negative Behavior and Siblings' Sex, Ordinal Position of the Sibling, and Their Age

<table>
<thead>
<tr>
<th></th>
<th>Sibling's Sex</th>
<th>Ordinal Position^1</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Play</strong></td>
<td></td>
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<tr>
<td>Hyperactive's</td>
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<tr>
<td>Negative</td>
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<td>.22</td>
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<td>Sibling's Negative</td>
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<td>.27</td>
<td>-.40*</td>
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<td><strong>Supervised-Task</strong></td>
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<tr>
<td>Hyperactive's</td>
<td></td>
<td></td>
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<tr>
<td>Negative</td>
<td>.03</td>
<td>-.01</td>
<td>-.34</td>
</tr>
<tr>
<td>Sibling's Negative</td>
<td>-.21</td>
<td>.21</td>
<td>-.41*</td>
</tr>
</tbody>
</table>

*p < .05.

^1Pearson correlations are reported for age; point-biserial correlations are reported for sibling's sex and ordinal position.

Ordinal position refers to whether the sibling was younger or older than the hyperactive child.

Pearson correlations between age and negative behavior were moderate (see Table 3) and suggested that younger children were more likely to behave negatively. To further investigate the effect of age on negative behavior, each group of hyperactive and normal sibling dyads was divided into two groups based upon an arbitrary designation of the target child as being either young (\( N = 21, \bar{X} \text{Age} = 4 \) years, 10 months) or old (\( N = 25, \bar{X} \text{Age} = 8 \) years, 1 month).* Separate two (hyperactive versus normal) by two (target child young versus target child old) analyses of variance were carried out for the negative behavior dyad scores in the play and supervised-task situations. During play, hyperactive dyads showed significantly more negative behavior than normals, \( F(1,43) = 5.42, p < .05 \), independent of the age of the target child. However, during the supervised-task situation there was a significant diagnosis \( \times \) age interaction, \( F(1,43) = 4.33, p < .05 \), indicating that dyads that included a young hyperactive child exhibited more negative behavior relative to dyads in which there was an old hyperactive child or normal sibling dyads (\( p < .05 \)).

In order to examine the relationships between behavior during the sibling interaction of hyperactives and maternal perceptions of the hyperactive child and of herself, Pearson correlations were computed. These correlations between Parenting Self-Esteem, Parenting Stress and hyperactive sibling dyad scores are presented in Table 4, for the play and supervised task situations.

The amount of sibling interaction during play was positively correlated with the extent to which mothers valued and were comfortable with their parental role (\( r = .65, p < .01 \)) and their perceived parenting skill (\( r = .44, p < .05 \)), and negatively correlated with mothers' reports of stress in both the child (\( r = -.36, p < .05 \)) and mother domains (\( r = -.50, p < .01 \)). Additionally, mothers who reported less comfort and value in their role as parents had children who were more negative while playing together in the unsupervised play situation (\( r = -.53, p < .01 \)).

For the supervised-task situation, directiveness in the sibling dyad was positively related to the mothers' value and comfort in the parental role (\( r = .40, p < .05 \)) and inversely related to her reported stress in mother-child relationship (\( r = -.37, p < .05 \)) and mother domain (\( r = -.41, p < .05 \)). Independent play during the supervised-task situation was inversely related to reports of situational stress by mothers (\( r = -.38, p < .05 \)). Finally, mothers of sibling dyads which showed high levels of negative behavior during the task situation reported higher

*p<.05.

^1For the young group 11 target children were hyperactive and 10 were normals. In the older group 12 target children were hyperactive and 13 were normals. Within each group the hyperactive and normal children showed no significant age difference.

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Table 4.

Pearson Correlations Between Behavior in the Hyperactive Child-Sibling Dyad During a Play and Supervised-Task Situation and Maternal Reports of Parenting Self-Esteem and Parenting Stress

<table>
<thead>
<tr>
<th>Parenting Self-Esteem</th>
<th>Parenting Stress</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Skill</td>
</tr>
<tr>
<td>Play</td>
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<td></td>
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<td>Directiveness</td>
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<td>-.09</td>
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<td>Independent Play</td>
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<tr>
<td>Interaction</td>
<td>.65**</td>
<td>.44*</td>
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<td>Negative</td>
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<tr>
<td>Supervised-Task</td>
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<td>Directiveness</td>
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<td>.03</td>
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</tr>
<tr>
<td>Negative</td>
<td>-.08</td>
<td>.12</td>
</tr>
</tbody>
</table>

Note: *N = 19 for the Parenting Self-Esteem measures and *N = 21 for the Parenting Stress measure.

*p < .05. **p < .01.

'C = Child Domain, M/C = Mother-Child Relationship, M = Mother Domain, and Sit. = Situational Stress.

levels of stress in the child domain (r = +.60, p < .01).

Discussion

Interactions between siblings were generally characterized by reciprocity, as reflected in the correlations between target child and sibling behaviors for both hyperactives and normals. The failure to find differences between identified hyperactive children and their siblings with respect to their negative behavior was somewhat surprising, although not inconsistent with previous reports (Arnold, Levine, & Patterson, 1975; Mash & Mercer, 1979; Patterson, 1976). In the current study, siblings of hyperactives exhibited as much negative behavior as the identified problem child. It remains to be determined whether the high rate of negative behavior shown by siblings of hyperactives is specific to interactions with their hyperactive siblings as observed here, or whether it extends to other family members and situations. Our preliminary studies of this question (Mash & Johnston, Note 5) suggest that interactions between siblings of hyperactives and their mothers are virtually indistinguishable from those observed between hyperactive children and their mothers, although other studies have reported findings to the contrary (Robinson & Eyberg, 1981).

The fact that siblings of hyperactives engaged in more independent play during the play situation and less interaction during the supervised-task situation is suggestive of an interational scenario involving avoidance by siblings of their hyperactive brother. Such findings may also suggest that the hyperactive child is less likely to play independently when the two siblings are alone and more likely to initiate interaction when the situation requires joint effort. Since the hyperactive child may be persistently attempting to interact with his non-interactive sibling the high rates of observed sibling conflict are not surprising.

That sibling conflict is a major problem for hyperactive children, as was frequently reported in interviews with mothers, is evident in the observed differences in negative behavior between hyperactive and normal sibling dyads. The sibling interactions of hyperactives were characterized by about four times the amount of negative behavior as normals when the children were playing without adult supervision, and about twice as much negative behavior as normals when being supervised by their mothers. Approximately 10% of the total interaction between hyperactive children and their siblings was negative. These high rates of negative behavior in hyperactive sibling dyads were unrelated to whether the hyperactive child’s sibling was male or female or younger or older. However, young hyperactives tended to be more negative with their siblings than older hyperactives during the supervised-task situation. This finding is consistent with previous work (Mash & Johnston, 1982) which has shown that the interactions of young hyperactives tend to be characterized by more negative behavior, especially under more demanding task conditions.

Current findings also suggest that interactions between hyperactive children and their siblings, both when the mother is present and absent are related to mothers’ reports of self-esteem and stress. During play, with the mother absent, high rates of negative behavior and independent play in the hyperactive-child sibling dyad were correlated with maternal reports of low self-esteem related to value of the parenting role and perceived parenting skill respectively. Alternatively, positive social interaction between siblings was positively correlated with mothers’ reported self-esteem and in-
versely related to their reports of stress in both the child and mother domains. During the mother-supervised task situation, directiveness in the hyperactive-child sibling dyad was positively related to maternal reports of stress in the mother-child relationship and in the mother domain. It was interesting to note that the negative behavior in the hyperactive child-sibling dyad when the mother was present was highly correlated with mothers' reports of stress emanating from her children, whereas negative behavior when the mother was absent was unrelated to her reports of stress in any of the domains. Although previous research (Mash & Johnston, 1983, in press) has shown relationships between hyperactive children's behavior while interacting with their mothers and maternal reports of self-esteem and stress, the current findings would suggest that events outside the parent-child interaction may also contribute to mothers' feelings of self-esteem and stress.

Taken together, the current findings suggest that more attention needs to be given to the study of sibling relationships in families of hyperactive children. This preliminary investigation was limited in obtaining a small sample of sibling behavior, in a laboratory-observation situation over a brief time period. These restrictions necessitated the examination of only global categories of sibling interaction, and hopefully future research will obtain the larger behavior samples necessary for examining more qualitative details associated with the sibling interactions of hyperactives. Another limitation of the current study was the identification of siblings as being non-hyperactive through interview procedures. Convergent data from hyperactivity checklists completed for siblings would be an important addition to future studies of the sibling interactions of hyperactives.

Nevertheless, the current report represents the only direct observational study of hyperactive-child/sibling interactions, and the findings are strongly suggestive of marked disturbances in the sibling relationship. Such disturbances have potentially important implications for understanding the disruptions in peer relationships so frequently reported for hyperactives (Campbell & Paulaskas, 1979; Milich & Landau, 1982; Pelham & Bender, 1982), and there is a need to establish the role that sibling relationships may play in relation to peer interactions. The significant amount of sibling conflict observed in the current study also has implications for the assessment and treatment of families of hyperactive children (Barkley, 1981b). Most behavioral treatment programs for hyperactives have focused on the difficulties of the identified problem child (Mash & Dalby, 1979).

The current findings would suggest that an approach that attempts to teach parents to manage the behavior of siblings rather than individual children is warranted, both in terms of the behaviors observed and in terms of the relationship between sibling interactions and maternal reports of self-esteem and stress. Although there is some evidence to suggest that parents may generalize their newly acquired parenting skills to the behavior of siblings and that untreated sibling behavior may change following treatment (e.g., Eyberg & Robinson, 1982), thus far little emphasis has been placed on teaching parents the skills required to directly reduce sibling conflict and promote prosocial sibling interactions.

Reference Notes


References

SIBLING INTERACTIONS


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