Childhood Depression and Conduct Disorder: II. An Analysis of Family Interaction Patterns in the Home

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Abstract

Few researchers have assessed family interaction patterns associated with childhood depression, especially using observations in natural settings. We directly sampled the interaction patterns of families with depressed, conduct-disordered, mixed depressed-conduct-disordered, and comparison children ages 7-14 years in their homes during the evening meal. Observational measures were taken of positive and aversive behaviors and affect expression for both parents, the referred children, and their siblings. Results replicated previous research showing that conduct-disordered children express high levels of aversive behavior and anger and are part of a family system marked by conflict and aggression. The depressed children were exposed to maternal aversiveness but did not show any evidence of elevated levels of anger or aversiveness in their own behavior. Surprisingly, this was also true for the mixed-disorder children. High levels of depression in both groups of depressed children were associated with low levels of conflict and anger in family members. Overall, siblings showed very similar patterns of behavior, and were exposed to similar patterns of parental behavior, as the referred children. Results are discussed in terms of family models that emphasize the function of aggression and depression in the maintenance of child psychopathology.

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Introduction

Whereas the last few decades have witnessed a dramatic increase in our knowledge of the epidemiology and classification of childhood depression, little attention has been devoted to delineating the factors associated with the development and maintenance of the disorder. In particular, although a number of authors have speculated about the importance of the child's family in the development of depression, few researchers have attempted to assess the relationship between family interaction patterns and depression in children. This contrasts markedly with progress in adult depression, which has increasingly focused on the interpersonal context of depression (e.g., Coyne, 1976; Weissman & Paykel, 1974).

McConville and Bruce (1985) reviewed a number of clinical descriptions of the families of depressed children, consistently finding the perception that these families are marked by chaotic, rejecting,
and hostile interaction patterns. However, we located only one study that directly assessed family interaction patterns associated with childhood depression. Cole and Rehm (1986) showed that parents of depressed children provided different patterns of contingent attention than did parents of nonclinic and clinic-nondepressed children during a laboratory-based family interaction task. Specifically, the parents of depressed children were more likely to attend to their child's failure rather than success on the structured task. These authors interpreted their results as supporting a self-control model of depression in which children develop a depressogenic cognitive style as a result of internalization of their parents' reinforcement patterns.

Because there have been few studies in which different patterns of family interaction discriminated between different types of childhood psychopathology (Goodyer, 1990; Sines, 1987), the Cole and Rehm (1986) findings may hold promise. Specifically, more research is needed that assesses the extent to which specific family variables are associated with depression or child psychopathology in general.

The issue of specificity is particularly important when recent data on comorbidity are considered. Kazdin (1990) has pointed to the common observation that childhood depression often coexists with conduct and anxiety problems. Little is known about family variables associated with childhood anxiety, but much information is currently available on the family interaction patterns associated with the development of conduct problems in children. Parents of conduct-disordered children typically use aversive, yet ineffective discipline and high rates of aggression in interactions with their children (Patterson, 1982).

Furthermore, Dumas, Gibson, and Albin (1989) and Hops et al. (1987) have shown that the expression of depressive behaviors in families may be functionally linked to displays of hostility from other family members. These authors have argued that depressive behaviors can function to reduce the frequency with which depressed family members are subject to aggression from other members. A tentative formulation consistent with this research is that depressed children may display depressed behavior to minimize their exposure to an aversive family environment. In contrast, the literature clearly indicates that children with conduct problems reciprocate family aggression with high levels of aggression (Patterson, 1982; Sanders, Bor, & Dadds, 1989).

At this point, no data are available on the family interaction of children with mixed depression-conduct problems, although theoretical speculations have been made about their interaction. Some authors have argued that conduct problems function to mask underlying depression; that is, the child may display conduct problems as an outlet for an underlying depression (e.g., Cytryn & McKnew, 1974; Malmquist, 1977). In contrast, social learning theorists have argued that childhood depression is frequently expressed openly, results from a long history of social rejection due to conduct problems, and functions to reduce the likelihood of aggression from others (Dumas et al, 1989; Hops et al., 1987; Patterson, 1990).

Another method that can be used to assess the role of the family in child psychopathology is to examine family interaction involving the siblings of disturbed children. Plomin and DeFries (1985) have cogently argued that children raised within the same home are exposed to very different family environments. Thus, it is possible that family interaction patterns may differ across siblings and may be predictive of problems in a specific child. Research assessing family interaction with the siblings of clinic-referred children has been limited to children with conduct problems. In contrast to Plomin and DeFries's arguments, Patterson (1982) clearly demonstrated that siblings of aggressive children also emit aggressive behaviors at a higher rate than do nonclinic children. Patterson's findings are consistent with the notion that families of clinic-referred children have generalized interactional problems and that, although one child may be referred for help, other children show similar disturbances.

The aim of the present study was to compare the parent-child interaction patterns in families with a clinically diagnosed depressed child, conduct-disordered child, mixed depressed-conduct-disordered child, or nonclinic child. A problem for research on family interaction is the difficulty of sampling relevant family behavior. Given the absence of studies assessing these patterns in natural settings, we conducted our observations in the family home during the evening meal. Previous research has highlighted the likelihood that family communication and conflict escalate in this setting, in which all family members come together to share a common task (Dadds, Sanders, Behrens, & James, 1987).
We hypothesized that all clinic children would be subject to higher levels of aversive parent behaviors than would the comparison children, but that only children with conduct problems (with or without concurrent depression) would reciprocate with higher levels of aversive behavior directed at their parents. Thus our model assumed that children with conduct problems are part of a system of reciprocal hostility (Patterson, 1982), whereas depressed children are exposed to similar levels of hostility but do not reciprocate them. Finally, we hypothesized that the siblings would be exposed to similar family behaviors and would be observed to emit aggressive and depressive behaviors at similar levels to their clinic-referred siblings.

Method

Participants

Participants were the same 18 depressed, 27 conduct-disordered, 12 mixed-disorder, and 16 comparison children and their parents described by Sanders, Dadds, Johnston, and Cash (1992) elsewhere in this issue. In this study we also included all other children in the family whose age was within 5 years of the age of the target child. These included 24 siblings of the depressed children, 30 siblings of the conduct-disordered children, 16 siblings of the mixed depressed-conduct-disordered children, and 17 siblings of the comparison children. Table 1 shows demographic data for the four sibling groups, including the mean age of the sibling relative to the target child. Analyses of variance (ANOVAs) showed that groups did not differ on any demographic measure.

Observational Measures

All families were videotaped in the home during a typical evening meal. These videotapes were then coded by independent observers who had been extensively trained in the use of the Family Observation Schedule (FOS; Dadds, Schwartz, & Sanders, 1987). This observation system uses a partial interval time sample in which ongoing family interaction is blocked into 20-s intervals. The first 20 min of each mealtime were coded. For each interval, the observer scored the presence or absence of each behavioral category for each family member. The FOS provides 13 categories of parent behaviors and 7 categories of child behaviors and has been used extensively and described in detail in previous research (Dadds, Schwartz, & Sanders, 1987; Sanders & Dadds, 1982; Sanders et al., 1989). Brief definitions of the individual categories of parent and child behaviors appear in Table 2.

The following measures were derived from the FOS for use in this study.

1. Child or sibling aversive—the percentage of intervals in which any one of the five aversive child behaviors (noncompliance, complaint, aversive mands, physical negative, or other) occurred. This measure was scored separately for target children (child-aversive) and siblings (sibling-aversive).

2. Parent-child aversive—the percentage of intervals in which the parent was scored as having directed any one of the aversive parent behaviors (aversive contact, aversive questions, aversive alpha instruction, aversive beta instruction, or aversive social attention) at the target child. This measure was scored separately for each parent (mother-child aversive and father-child aversive).

3. Parent-sibling aversive—the percentage of intervals in which the parent was scored as directing any one of the aversive parent behaviors at a sibling. This measure was scored separately for each parent (mother-sibling aversive and father-sibling aversive).

4. Parent-child positive—the percentage of intervals scored as containing a positive parent behavior (praise, contact, questions, or social attention) directed at the target child. This measure was scored for each parent separately (mother-child positive and father-child positive).

5. Smiles and frowns—the percentage of intervals containing smiles and frowns was also calculated for target children, siblings, mothers, and fathers separately.

Reliability checks were carried out by an independent observer on 33% of all videotaped observations, which were randomly selected across all groups. Kappas were calculated for each parent and
Table I
Sociodemographic Data for Depressed, Conduct-Disordered, Mixed, and Comparison Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Depressed</th>
<th>Conduct disordered</th>
<th>Mixed</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Target child age</td>
<td>10.3</td>
<td>2.3</td>
<td>9.6</td>
<td>2.3</td>
</tr>
<tr>
<td>% Female</td>
<td>12.9</td>
<td>11.8</td>
<td>11.8</td>
<td></td>
</tr>
<tr>
<td>No. of children in family</td>
<td>3.1</td>
<td>1.1</td>
<td>3.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Sibling's age</td>
<td>9.8</td>
<td>3.1</td>
<td>8.4</td>
<td>3.8</td>
</tr>
<tr>
<td>Age in relation to target</td>
<td>-0.7</td>
<td>3.0</td>
<td>-0.8</td>
<td>2.8</td>
</tr>
<tr>
<td>% Female siblings</td>
<td>56.9</td>
<td>44.4</td>
<td>71.4</td>
<td></td>
</tr>
</tbody>
</table>
child category. All kappas were higher than 75% ($M = 86.3, SD = 6.5$). Observers were unaware of the family's group status and the specific hypotheses under investigation.

**Procedure**
A research assistant arrived shortly before the scheduled mealtime to set up the video equipment as unobtrusively as possible in the kitchen/dining area. Videotaping commenced when all family members were seated and the meal served, and continued for 30 min unless the target child left the area or another unavoidable interruption occurred. Family members were requested to remain at the table, turn off the television or radio, and otherwise try to interact as naturally as possible.

Results

Table 3 shows means and standard deviations for each group on all of the observational measures. Group differences were tested using a series of 2 (depressed vs. not depressed) x 2 (conduct disordered vs. not conduct disordered) multivariate analyses of variance (MANOVAs). For parent behaviors, the child who was the target of the parent behavior was added as a third independent variable (target child vs. sibling). The majority of families had only one sibling within 5 years of age of the target child, and no family had more than two siblings within this range. There were no differences in the number of eligible siblings across diagnostic groups. Thus we treated each sibling as a datum rather than taking means across siblings from the same family.

Child Behavior

The first MANOVA compared children on overall rates of deviant behavior and affect (smiling and frowning). There was no three-way interaction, but depression interacted with conduct disorder, $F(3, 143) = 6.04, p < .01$. Follow-up univariate analyses revealed that this interaction was significant for deviant behavior only, $F(1, 145) = 17.92, p < .01$. Table 3 shows that for both target children and their siblings, deviant behavior was significantly higher in the conduct-disordered group than in the other three groups, who did not differ from each other. Main effects were also significant for conduct disorder and depression on the measure of deviant behavior; however, these were not interpreted given the interaction between these variables.

The child variable (target vs. sibling) did not interact with depression or conduct disorder but produced an overall main effect on the MANOVA, $F(3, 143) = 7.74, p < .01$. Follow-up univariate analyses revealed that this main effect was significant for smiling, $F(1, 145) = 7.17, p < .01$, and frowning, $F(1, 145) = 10.14, p < .01$, but not deviant behavior. Table 3 shows that target children engaged in more smiling and frowning than did their siblings across all diagnostic groups.

To further analyze group differences for the measure of overall child deviant behavior, we conducted a 2 x 2 x 2 MANOVA to test the impact of child (target vs. sibling), depression, and conduct disorder on the five individual categories of deviant child behavior. Figure 1 shows the data used in this analysis. No three-way interaction occurred. However, depression interacted with conduct disorder, $F(5, 143) = 3.89, p < .01$, and follow-up univariate analyses revealed that this interaction was significant for all five behaviors. Follow-up Tukey honestly significant difference (HSD) tests revealed that the children with conduct disorder showed higher rates of each type of deviant behavior than did the other three groups, who did not differ from each other. The child variable (target vs. sibling) did not interact with depression or conduct disorder but produced a main effect, $F(5, 143) = 5.19, p < .01$. Univariate analyses were significant for all variables except noncompliance. For complaints, aversive mands, and physical negative, target children showed higher rates than did siblings; however, siblings engaged in significantly higher rates of oppositional behavior than did target children.

Parent Behavior

Parent behaviors directed at the children were analyzed using 2 (target child vs. sibling) x 2 (depressed vs. not depressed) x 2 (conduct disordered vs. not conduct disordered) MANOVAS. The first analysis included overall measures of mother-child aversive and mother-child positive as dependent variables. Means and standard deviations are in Table 3. The only significant effect was an
Table 3
Mean Percentages of Intervals That Contained Specific Child and Parent Behaviors as Observed in the Home for Depressed, Conduct-Disordered, Mixed-Disorder, and Comparison Groups

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Depressed</th>
<th>Conduct disordered</th>
<th>Mixed</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Child aversive</td>
<td>17.8sb</td>
<td>16.9</td>
<td>38.0sh</td>
<td>26.8</td>
</tr>
<tr>
<td>Sibling aversive</td>
<td>17.6sb</td>
<td>19.4</td>
<td>35.9sh</td>
<td>20.5</td>
</tr>
<tr>
<td>Child smile</td>
<td>28.1s</td>
<td>15.5</td>
<td>23.0sh</td>
<td>19.8</td>
</tr>
<tr>
<td>Child frown</td>
<td>2.9</td>
<td>4.4</td>
<td>5.8</td>
<td>11.4</td>
</tr>
<tr>
<td>Sibling smile</td>
<td>25.6s</td>
<td>19.1</td>
<td>16.0</td>
<td>20.3</td>
</tr>
<tr>
<td>Sibling frown</td>
<td>0.3</td>
<td>0.9</td>
<td>0.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Mother-child aversive</td>
<td>10.3s</td>
<td>13.4</td>
<td>15.5</td>
<td>13.0</td>
</tr>
<tr>
<td>Mother-child positive</td>
<td>61.9</td>
<td>21.4</td>
<td>56.5</td>
<td>21.2</td>
</tr>
<tr>
<td>Mother-sibling aversive</td>
<td>14.8</td>
<td>18.3</td>
<td>19.1</td>
<td>14.5</td>
</tr>
<tr>
<td>Mother-sibling positive</td>
<td>64.2</td>
<td>21.6</td>
<td>59.5</td>
<td>17.3</td>
</tr>
<tr>
<td>Father-child aversive</td>
<td>0.7sb</td>
<td>1.4</td>
<td>7.2</td>
<td>5.7</td>
</tr>
<tr>
<td>Father-child positive</td>
<td>55.1</td>
<td>30.3</td>
<td>48.0</td>
<td>15.2</td>
</tr>
<tr>
<td>Father-sibling aversive</td>
<td>3.5</td>
<td>4.9</td>
<td>6.0</td>
<td>9.3</td>
</tr>
<tr>
<td>Father-sibling positive</td>
<td>51.4</td>
<td>21.8</td>
<td>41.4</td>
<td>23.5</td>
</tr>
<tr>
<td>Mother smile</td>
<td>15.1sb</td>
<td>10.5</td>
<td>14.2s</td>
<td>13.1</td>
</tr>
<tr>
<td>Mother frown</td>
<td>1.6</td>
<td>3.3</td>
<td>0.7</td>
<td>1.3</td>
</tr>
<tr>
<td>Child smile</td>
<td>15.2s</td>
<td>12.5</td>
<td>10.0</td>
<td>12.9</td>
</tr>
<tr>
<td>Father smile</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Note. Means with the same subscript differ significantly using Tukey’s honestly significant difference test at p < .05.

Figure 1. Children's aversive behaviors.
interaction between depression and conduct disorder, \( F(2,50) = 4.00, p < .05 \). Follow-up univariate analyses were significant for mother-child aversive only, \( F(1, 51) = 7.75, p < .01 \). Mothers in the conduct-disordered-only group were more aversive to target children and siblings than were mothers in the comparison group. Mothers in the depressed and mixed groups directed aversive behavior at target children and siblings at levels similar to those of mothers in the conduct-disordered group; however, these levels were not significantly different from those of mothers in either the conduct-disordered or comparison group. No significant differences were found in the levels of aversive or positive maternal behaviors directed at target children compared with siblings.

A parallel MANOVA was used to analyze fathers' behavior. No significant differences were found. However, it is clear from Table 3 that fathers' behavior closely resembled that of the mothers in that the fathers of conduct-disordered children directed aversive behavior at target children and siblings at least twice as often as fathers in the other groups.

To isolate the source of group differences in mothers' aversive behaviors, we analyzed the five aversive maternal behaviors (aversive contact, aversive questions, aversive alpha instruction, aversive beta instruction, and aversive social attention) together as dependent variables. The child variable (target child vs. sibling) did not produce a main effect or interact with depression or conduct disorder. Depression interacted with conduct disorder for the univariate variables aversive questions, \( F(1, 52) = 9.73, p < .01 \); aversive alpha instructions, \( F(1, 52) = 4.10, p < .05 \); and aversive social attention, \( F(1, 52) = 6.74, p < .05 \). Mothers in the conduct-disordered group engaged in higher rates of aversive questions and aversive alpha instructions compared with the other groups, and mothers in the conduct-disordered and depressed-only groups engaged in higher levels of aversive social attention than did mothers in the other two groups. Conduct disorder also produced a main effect for aversive beta instructions, \( F(1, 52) = 8.49, p < .01 \). Mothers in the conduct-disordered and mixed groups engaged in higher rates of these instructions than did mothers in the depressed and comparison groups. Data on mothers' and fathers' aversive behaviors are shown in Figure 2.

Parental affect was analyzed using a 2 (depressed or not depressed) x 2 (conduct disordered or not conduct disordered) MANOVA with the dependent measures smiling and frowning for mothers and fathers separately. An interaction between depression and conduct disorder, \( F(4, 31) = 4.8, p < .01 \), was found, and univariate follow-up tests revealed that the interaction was significant for mothers' smiling only. The means in Table 3 were tested using Tukey's HSD comparisons. Mother in all three clinical groups engaged in less smiling than did the comparison mothers. No group differences were found for fathers' affect.

**Relationship Between Mealtime Behavior and Depression**

Finally, we were interested in the extent to which the measures of family behavior at mealtimes were predictive of the child's reported level of depression. Table 4 shows bivariate correlations between the level of depression as reported by clinic children on the Child Depression Inventory (Kovacks & Beck, 1977) and levels of aversiveness and affect expression by the child and parents. Because there were differences in the sample sizes across groups and the number of correlations calculated, we interpreted overall patterns of correlations rather than individual significance levels. For the depressed group, aversive behavior by both parents decreased as the level of child depression increased. The level of smiling displayed by the child increased, and frowning displayed by the child decreased, as child depression increased. Affect expression in mothers was similarly related in that their smiling increased and frowning decreased as child depression increased. Likewise, fathers' smiling increased with child depression. The level of aversive behavior in these depressed children increased with their level of depression.

For conduct-disordered children, aversive behavior by both parents and the child increased with the child's level of depression. Smiling and frowning by the child also increased with level of depression. Affect expression by mothers showed a similar pattern to that of the mothers of depressed children. That is, smiling increased and frowning decreased as the level of child depression increased. For fathers, both smiling and frowning increased with child depression.

For mixed depressed-conduct-disordered children, levels of aversiveness in both parents and in the child decreased as the level of the child's depression increased. Smiling by these children was strongly
Table 4
Correlations Between Target Children's Self-Reported Depression on the Child Depression Inventory and Levels of Family Aversiveness and Affect Expression

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Depressed (n = 18)</th>
<th>Conduct disordered (n = 27)</th>
<th>Mixed (n = 12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother–child aversive</td>
<td>-.53*</td>
<td>.41*</td>
<td>-.17</td>
</tr>
<tr>
<td>Father–child aversive</td>
<td>-.42</td>
<td>.68*</td>
<td>-.17</td>
</tr>
<tr>
<td>Child aversive</td>
<td>.45</td>
<td>.48*</td>
<td>-.44</td>
</tr>
<tr>
<td>Child smile</td>
<td>.29</td>
<td>.65*</td>
<td>.89*</td>
</tr>
<tr>
<td>Child frown</td>
<td>-.24</td>
<td>.39*</td>
<td>-.39</td>
</tr>
<tr>
<td>Mother smile</td>
<td>.22</td>
<td>.13</td>
<td>.78*</td>
</tr>
<tr>
<td>Mother frown</td>
<td>-.27</td>
<td>-.29</td>
<td>-.17</td>
</tr>
<tr>
<td>Father smile</td>
<td>.59*</td>
<td>.39*</td>
<td>.97*</td>
</tr>
<tr>
<td>Father frown</td>
<td>-.8*</td>
<td>.30</td>
<td>-.38</td>
</tr>
</tbody>
</table>

* No fathers' frown occurred in this group.
* p < .05.
related to depression, increasing in level as depression increased. In contrast, the children's frowning decreased with the level of their depression. An identical pattern was seen for mothers and fathers of the mixed children. Levels of parental smiling increased and levels of frowning decreased as the level of child depression increased.

Discussion

We examined family interaction patterns associated with childhood depression and conduct disorder. Our results support previous research documenting the high levels of aversive interchange that occurs in families with conduct-disordered children (Patterson, 1982; Sanders et al., 1989). We found that conduct-disordered children exhibit relatively high levels of demanding, noncompliant, and other oppositional behaviors. These aversive behaviors seemed to be reciprocated by both parents and siblings, who displayed comparable levels of interactional negativity. Clearly, conduct-disordered children are part of a family system marked by negativity and coercion (Patterson, 1982).

In contrast, depressed children, with or without concurrent conduct disorder, engaged in overall levels of aversive behaviors at a level similar to that of the comparison children. Overall deviant behavior in the comparison, depressed, and mixed depressed-conduct-disordered children was consistently low, at a level half the observed rate for the conduct-disordered children or lower. These low rates of deviant behavior for the depressed and mixed-disorder children are consistent with levels observed in samples of nonclinic Australian children (Sanders et al., 1989). This result might be expected for the depressed-only children, but it is surprising that the depressed children who had concurrent oppositional and conduct problems displayed low levels of oppositional behavior.

There may be a number of reasons for this finding. First, the lack of differences among the depressed, mixed depressed-conduct-disordered, and comparison children could be due to problems with our diagnostic groupings. This seems unlikely, however, given the rigor of our diagnostic procedures, which included both child and parent assessment interviews. Furthermore, the data from the standardized checklists confirmed that children in all of the clinical groups differed from the comparison children in terms of behavioral and emotional problems. Second, it is possible that our use of a single home observation limited the range of child behavior that could be observed. It is possible that conduct-disordered children openly display deviant behavior more readily than do other diagnostic groups of children. In a similar vein, it is possible that the conduct-disordered children with concurrent depression were less likely to openly display oppositional behavior in such a scrutinized setting. Such an argument has been advanced by Dumas et al. (1989) and Hops et al. (1987), who propose that depression can limit the likelihood of aggression or the range of settings in which aggression is displayed in family interaction.

We hypothesized that depressed children would receive high levels of aversiveness from their parents, even though these children would not be engaging in such behaviors themselves. This was partly supported. Overall, mothers in the conduct-disordered group exhibited the highest levels of aversive behavior. Mothers in the depressed and mixed depressed-conduct-disordered groups directed overall aversive behaviors at target children at levels that were midway between the levels observed for the conduct-disordered and comparison children but generally closer to the levels observed for the conduct-disordered group. On the individual measures of parental aversiveness, mothers in the conduct-disordered group were consistently higher than the comparison mothers. Mothers of depressed children used more aversive social attention than did mothers in the mixed-disorder and comparison groups, and mothers of mixed-disorder children used more vague, aversive instructions than did mothers in the non-conduct-disordered groups. These data provide some evidence that children with depression may be exposed to parental aversiveness that they do not reciprocate. However, we found no evidence that fathers of depressed children engaged in a higher level of aversive behavior than did fathers of comparison children.

Similarly, mothers in the depressed and mixed depressed-conduct-disordered groups showed levels of overall aversive behavior directed at siblings that were more similar to the levels of aversiveness observed in mothers of the conduct-disordered children than the levels observed in the comparison mothers. Thus, the aversive behavior of mothers in all three clinic groups appeared to be a generalized response to all offspring. Fathers were observed to provide higher levels of aversiveness to the siblings of
children with conduct disorder only. Levels of positive behaviors by parents did not reliably discriminate among groups. This supports previous research that has shown that clinic and nonclinic samples do not differ in overall rates of positive behaviors (Sanders et al., 1989) and that maternal aversiveness is a better predictor of clinical outcome for families (Dadds, Schwartz, & Sanders, 1987). Similarly, the rates at which family members engaged in smiling and frowning did not discriminate among groups except for mothers. Mothers in the clinical groups evidenced less smiling than did the comparison mothers.

Another remarkable finding of this study was the similarity in the levels of deviant behavior shown by target children and their siblings. The behavior of siblings was, at a group level, observed to closely parallel that of the clinic-referred children. Siblings of conduct-disordered children displayed the highest levels of deviant behavior, and the siblings of depressed and mixed-disorder children were similar to the siblings of the comparison sample. Furthermore, the levels of maternal and paternal aversiveness directed at children did not differ between target children and siblings and again showed clear differences between the mothers of conduct-disordered and comparison children. These data support the Patterson's (1982) arguments that behavior disturbances in children are part of a family system that models and reinforces the particular behavioral "symptoms" particular to the disorder. Thus the behavioral disturbance may not be unique to the referred child.

Finally, we assessed the interaction between childhood depression and family interaction by correlating the level of depression reported by the child with the level of aversiveness and affect expression in the family. As expected, the level of aversiveness by the child increased with depression in the conduct-disordered and depressed children. However, in the mixed depressed-conduct-disordered children, level of aversiveness decreased with increasing depression. In parents of both depressed groups, aversiveness similarly decreased as the child level of depression increased. This appears to provide further evidence that depression may somehow have a limiting effect on the expression of aggression in families of children with depression.

The patterns of correlations between child depression and affect expression were remarkably consistent across groups. The only apparent differences were for children and fathers in the conduct-disordered group, in whom frowning increased with depression. For all other children and parents, frowning decreased as depression increased. For all family members from all groups, smiling increased as child depression increased. Again, this affect was particularly strong in the mixed-disorder group, in whom rate of smiling appeared to be very strongly related to the level of depression in the child.

Although the preceding findings need to be replicated because of our limited sample size, some consistent trends in the interaction patterns of families with conduct-disordered and depressed children have emerged. Whereas conduct-disordered children are clearly locked into family conflict that is generalized across parents and siblings, the depressed children do not appear to reciprocate parental aversiveness. Parental aversiveness is not specific to the target children but appears to be a generalized response across siblings. The tendency of children with both depression and conduct problems to express negative affect or aversive behavior was inversely related to their level of depression. Similarly, child depression was inversely related to parental aversiveness for both depressed groups of children but not the conduct-disordered-only children. Childhood depression clearly decreases the likelihood that parents will express conflict and anger.

Our results point to the importance of certain considerations in further research on childhood depression and conduct disorder. First, the inclusion of siblings can provide useful comparisons in judging the extent to which parental behaviors are uniquely associated with a particular child's disturbance. In the future, measures of psychopathology in siblings will help to clarify the relationship between parental behaviors and child dysfunction. Second, it seems clear that depression and aggression are interrelated phenomena in distressed families, and further research should build on the strong observational studies that have recently appeared (Dumas et al., 1989; Hops et al., 1987) to contribute to our understanding of this interrelationship.

Overview and Comments
The study reported and the study reported elsewhere in this issue by Sanders, Dadd, Johnston, and Cash (1992) show there are important differences and similarities between family interaction patterns and cognitive constructions associated with childhood depression and conduct disorder. Perhaps the most important finding that emerged was that childhood depression and conduct disorder do not appear to be independent; statistically we tested a design in which conduct disorder and depression were conceptualized as orthogonal, independent variables. However, it was remarkable that for the majority of our measures, depression and conduct disorder interacted. Typically, the conduct-disordered children were clearly part of a family system marked by coercion, aggression, and anger. However, children with both conduct disorder and depression appeared to be part of a system marked by the conspicuous absence of aggression. Children with depression only were also observed to engage in low levels of coercion themselves; however, there was tentative evidence that their mothers were using coercion in the home setting at a rate higher than were the comparison parents. We believe that further research is warranted that expands on this method of comparing different forms of child psychopathology in terms of family interactions and cognitions.

The major findings of the study by Sanders, Dadd, Johnston, and Cash (1992) confirm that although all three clinical groups are relatively ineffective at resolving family conflict, there are differences among the groups in how these deficiencies are expressed. Depressed children, regardless of whether they concurrently had conduct disorder, tended to display elevated dysphoric affect and a noticeable absence of angry affect, whereas conduct-disordered children were more volitile, displaying negative verbal and nonverbal behavior. Cognitively, depressed children tended to display both externally and internally focused negative cognitions about their interactions, whereas conduct-disordered children displayed only internally focused negative cognitions.

The incorporation of data on the siblings of referred children yielded important findings. Specifically, the similarity in the levels of aversive child behavior engaged in by target children and their siblings was remarkable. The levels of aversive behavior that parents directed at target children and at siblings were also similar.

A number of issues were highlighted by the present methodologies that will need to be incorporated into future research. First, because we did not collect diagnostic or self-report measures on the siblings, it is impossible to make any conclusions about the presence of behavioral and emotional problems in these children. It is an expensive and time-consuming procedure to collect measures on siblings; however, given the results of these studies and data and arguments presented by Patterson (1982), the allocation of resources may be worth it. Second, some of our hypotheses may have been better tested using conditional probability analyses in which the sequential interdependencies of family members’ behavior could be analyzed. Future researchers may want to use real-time data recording so that the family's interactions can be sequentially analyzed.

Most of our data were marked by very large variance within groups. Thus there were many findings of borderline statistical significance that we have not presented here and that might have been better detected if the following considerations are addressed in the future. Sample sizes should be increased so that factors such as gender, age, and the specific diagnosis of the child can be separated and analyzed. In the present studies, we were unable to do this, and, considering that our depressed groups had mixed gender, ages, and various subdiagnostic categories of depression (major depressive episode, dysthymia, and adjustment disorder), it is not surprising that our within-group variances were so large.

In addition to the need to increase sample size and define more homogenous populations, it may be that the use of a single sample of family interaction is insufficient to elicit certain aspects of family interaction. The present results indicate that it is possible to discriminate between conduct-disordered and non-conduct-disordered children on the basis of a single observation in either the clinic or home settings. In contrast, differentiation between the depressed and comparison samples was not clearly achieved, and this is where more extensive sampling may be necessary.

Brisbane, the city from which our sample was drawn, is Australia's third largest city, with a population of approximately 1.3 million. Throughout the recruitment phase of this study, we were in close contact with Brisbane's major teaching hospitals and child therapy agencies. It took close to 3 years to recruit the depressed children for this study, and our impression was that we were tapping many of the depressed children of Brisbane during that period. If this was the case, it appears that either the rate of
depression in 7- to 14-year-olds or the rate at which such depression is detected and referred in this group is considerably lower in our community than elsewhere (Kazdin, 1990). Further research into ethnocultural variations in the occurrence and referral of childhood depression might reveal valuable epidemiological data.

The final publication can be obtained online from APA PsycNET

References


