Association of Maladaptive Parental Behavior With Psychiatric Disorder Among Parents and Their Offspring

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Background: A longitudinal study was conducted to investigate the role of maladaptive parental behavior in the association between parent and offspring psychiatric disorder.

Methods: Psychosocial and psychiatric interviews were administered to a representative community sample of 593 biological parents and their offspring from 2 counties in the state of New York in 1975, 1983, 1985 to 1986, and 1991 to 1993. In 1975, the offspring were a mean age of 6 years. Maladaptive parental behavior was assessed in 1975, 1983, and 1985 to 1986. Parent and offspring psychiatric symptoms were assessed in 1983, 1985 to 1986, and 1991 to 1993.

Results: Maladaptive parental behavior substantially mediated a significant association between parental and offspring psychiatric symptoms. Parents with psychiatric disorders had higher levels of maladaptive behavior in the household than did parents without psychiatric disorders. Maladaptive parental behavior, in turn, was associated with increased offspring risk for psychiatric disorders during adolescence and early adulthood. Most of the youths that experienced high levels of maladaptive parental behavior during childhood had psychiatric disorders during adolescence or early adulthood, whether or not their parents had psychiatric disorders. In contrast, the offspring of parents with psychiatric disorders were not at increased risk for psychiatric disorders unless there was a history of maladaptive parental behavior.

Conclusions: Maladaptive parental behavior is associated with increased risk for the development of psychiatric disorders among the offspring of parents with and without psychiatric disorders. Maladaptive parental behavior appears to be an important mediator of the association between parental and offspring psychiatric symptoms.

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INTRA FAMILIAL TRANSMISSION of psychopathology is an important factor in the etiology of psychiatric disorders. Research has indicated that individuals with a familial history of psychiatric disorder are at elevated risk for onset of psychiatric disorder, and that genetic and environmental factors may both play important roles in intrafamilial transmission. Nevertheless, the mechanisms that cause psychiatric disorders to be transmitted from parents to their offspring remain poorly understood.

Maladaptive parenting has long been viewed as an important determinant of offspring psychopathology. Parental behavior may be influenced by offspring temperament and parental psychopathology, both of which are likely to be determined in part by genetic factors. However, while numerous studies have examined associations between parental psychopathology, parental behavior, and offspring psychopathology, few studies have included a comprehensive assessment of all 3 sets of factors using a multiwave prospective longitudinal method. Furthermore, no previous study has assessed parental psychopathology, parental behavior, and offspring psychopathology repeatedly from childhood through the early adulthood of the offspring, controlling for the effects of offspring temperament, offspring psychopathology, and parental psychopathology on parental behavior. Therefore, important questions remain unanswered about the role that parental behavior plays in the intrafamilial transmission of mental disorders. The nature of this association is of considerable interest to clinicians and scientists alike, in part because it may be possible to reduce the likelihood that children will develop psychiatric disorders by helping parents to modify their child-rearing behavior.

Maladaptive parental behavior is likely to be one of the important aspects
The parent and youth versions of the Diagnostic Interview Schedule for Children were administered to assess offspring anxiety, depressive, disruptive, and substance use disorders in 1983 and 1985 to 1986. In 1991 to 1993, the Diagnostic Interview Schedule for Children was administered only to the offspring. Mothers and youths were interviewed because the use of multiple informants increases the reliability and validity of psychiatric diagnoses among children and adolescents. Symptoms were considered present if reported by either informant. The reliability and validity of the Diagnostic Interview Schedule for Children as employed in the present study are comparable with those of other structured interviews. Items used to assess personality disorders (PDs) were adapted from instruments including the Personality Diagnostic Questionnaire and the Structured Clinical Interview for DSM-III-R Personality Disorders, combined using computer algorithms, and modified to maximize correspondence with DSM-IV diagnostic criteria. Because PD symptoms must be persistent for an adolescent to be diagnosed as having a PD, a PD was not diagnosed unless PD diagnostic criteria were met in 1985 to 1986 or 1991 to 1993 and substantially elevated PD symptom levels were present on both occasions. Research has supported the reliability and validity of the items and algorithms used to assess PDs.

Two types of interview data were used to assess parental psychopathology. Current psychopathology was assessed during the 1975, 1983, and 1985 to 1986 maternal interviews. Lifetime psychopathology was assessed during the 1991 to 1993 maternal interview. Interview items used to assess current maternal anxiety; depressive, disruptive, personality, and substance use symptoms were obtained from the Disorganizing Poverty Interview, the California Psychological Inventory, the Hopkins Symptom Checklist, and instruments that assessed maternal alienation, rebelliousness, and other dysfunctional traits. Paternal alcohol abuse, drug abuse, and antisocial behavior were assessed using the Disorganizing Poverty Interview. Lifetime maternal and paternal anxiety, and depressive, disruptive, personality, and substance use disorders were assessed using items adapted from the New York High-Risk Study Family Interview. Data regarding the onset of parental disorders permitted identification of disorders that were evident by the time that the mean age of the offspring was 16 years.

Diagnostic algorithms were developed using items that assessed DSM-IV diagnostic criteria for maternal anxiety, depressive, disruptive, personality, and substance use disorders. Diagnoses were not assigned unless there was clear and convincing evidence indicating that DSM-IV diagnostic criteria were met. Sufficient information was available to permit the assessment of maternal alcohol abuse, attention-deficit/hyperactivity disorder, conduct disorder, drug abuse, generalized anxiety disorder, major depressive disorder, obsessive-compulsive disorder, posttraumatic stress disorder, schizophrenia, and other psychotic disorders. The algorithm classified PDs according to the presence of one or more PDs, the presence of PDs with comorbid anxiety disorders, the presence of PDs with comorbid personality disorders, and the presence of PDs with comorbid substance use disorders.
assessing psychiatric disorders among the offspring during their childhood, adolescence, and early adulthood. It is also necessary to control for the effects of parental psychopathology, offspring temperament, and offspring psychopathology on maladaptive parental behavior.11 We report findings from such a community-based prospective longitudinal study to investigate whether maladaptive parental behavior mediates the association between parental and offspring psychiatric disorders.

### RESULTS

#### PREVALENCES OF MATERNAL, PATERNAL, AND OFFSPRING PSYCHIATRIC DISORDERS

Data regarding the cumulative prevalence of maternal and paternal psychiatric disorders before and during the childhood and adolescence of the offspring, and of offspring...
psychiatric disorders during late adolescence and early adulthood, are presented in Table 3.

ASSOCIATION BETWEEN PREEXISTING OFFSPRING PSYCHOPATHOLOGY AND SUBSEQUENT PARENTAL BEHAVIOR

Difficult childhood temperament at a mean age of 6 years was associated with higher levels of maladaptive parental behavior at a mean age of 14 years ($t_{201} = 3.28$, $P=.001$) and 16 ($t_{201} = 2.37$, $P=.02$) years. Psychiatric disorder at a mean age of 14 years was associated with higher levels of maladaptive parental behavior at a mean age of 16 years ($t_{201} = 5.67$, $P<.001$).

ASSOCIATION BETWEEN PARENTAL PSYCHIATRIC DISORDERS AND MALADAPTIVE PARENTAL BEHAVIOR

Fourteen types of maladaptive maternal behavior and 9 types of maladaptive paternal behaviors were more prevalent among parents with psychiatric disorders than among parents without psychiatric disorders. These associations remained significant after controlling for offspring age, sex, difficult childhood temperament, and psychiatric disorders during early adolescence were controlled statistically (Tables 1 and 2). Overall, parents without psychiatric disorders had an adjusted mean (SD) of 1.89 (1.84) maladaptive behaviors. Parents with psychiatric disorders had a higher mean (SD) of 7.02 (7.80) maladaptive behaviors.

**Table 1. Maternal Psychiatric Disorders and Maladaptive Maternal Behaviors During the Childhood and Adolescence of the Offspring**

<table>
<thead>
<tr>
<th>Maladaptive Maternal Behavior</th>
<th>Without Psychiatric Disorder (n = 459)</th>
<th>With Psychiatric Disorder (n = 134)</th>
<th>Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harsh punishment of child</td>
<td>7</td>
<td>22</td>
<td>3.72 (2.17-6.38)‡</td>
</tr>
<tr>
<td>Inconsistent enforcement of rules</td>
<td>12</td>
<td>25</td>
<td>2.60 (1.61-4.22)‡</td>
</tr>
<tr>
<td>Low amount of time spent with child</td>
<td>18</td>
<td>29</td>
<td>3.16 (1.96-5.09)§</td>
</tr>
<tr>
<td>Low educational aspirations for child</td>
<td>18</td>
<td>33</td>
<td>2.18 (1.42-3.35)‡</td>
</tr>
<tr>
<td>Low maternal affection toward child</td>
<td>7</td>
<td>15</td>
<td>2.19 (1.22-3.96)‡</td>
</tr>
<tr>
<td>Maternal possessiveness toward child</td>
<td>4</td>
<td>13</td>
<td>3.80 (1.92-7.54)‡</td>
</tr>
<tr>
<td>Maternal use of guilt to control child</td>
<td>6</td>
<td>24</td>
<td>4.49 (2.61-7.72)‡</td>
</tr>
<tr>
<td>Numerous loud arguments with child’s father</td>
<td>13</td>
<td>33</td>
<td>3.19 (2.03-5.00)‡</td>
</tr>
<tr>
<td>Poor control of anger toward child</td>
<td>2</td>
<td>6</td>
<td>2.59 (1.02-6.57)§</td>
</tr>
<tr>
<td>Poor maternal communication with child</td>
<td>19</td>
<td>31</td>
<td>1.89 (1.22-2.91)‡</td>
</tr>
<tr>
<td>Poor maternal supervision of child</td>
<td>4</td>
<td>10</td>
<td>2.97 (1.60-4.35)‡</td>
</tr>
<tr>
<td>Poor maternal maintenance of home</td>
<td>6</td>
<td>16</td>
<td>2.66 (1.47-4.82)‡</td>
</tr>
<tr>
<td>Regular cigarette smoking in presence of child</td>
<td>14</td>
<td>29</td>
<td>2.63 (1.66-4.16)‡</td>
</tr>
</tbody>
</table>

*CI indicates confidence interval.
†Maternal behaviors that were not significantly associated with maternal psychiatric disorders are not included in this table.
‡Remained significant after controlling for offspring age, sex, and difficult temperament during childhood, for parental education, and for offspring psychiatric disorders during early adolescence.
§Remained significant after controlling for offspring age, sex, and difficult temperament during childhood.

**Table 2. Paternal Psychiatric Disorders and Maladaptive Paternal Behaviors During the Childhood and Adolescence of the Offspring**

<table>
<thead>
<tr>
<th>Maladaptive Paternal Behavior</th>
<th>Without Psychiatric Disorder (n = 445)</th>
<th>With Psychiatric Disorder (n = 148)</th>
<th>Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low amount of time spent with child</td>
<td>16</td>
<td>27</td>
<td>2.02 (1.29-3.15)‡</td>
</tr>
<tr>
<td>Low level of paternal assistance to child’s mother</td>
<td>11</td>
<td>43</td>
<td>6.02 (3.88-9.33)‡</td>
</tr>
<tr>
<td>Low paternal affection toward child</td>
<td>6</td>
<td>14</td>
<td>2.52 (1.36-4.66)‡</td>
</tr>
<tr>
<td>Numerous loud arguments with child’s mother</td>
<td>13</td>
<td>32</td>
<td>3.10 (1.99-4.83)‡</td>
</tr>
<tr>
<td>Poor fulfillment of paternal role in family</td>
<td>8</td>
<td>36</td>
<td>6.54 (4.04-10.58)‡</td>
</tr>
<tr>
<td>Poor paternal communication with child</td>
<td>16</td>
<td>29</td>
<td>2.09 (1.35-3.22)‡</td>
</tr>
<tr>
<td>Poor paternal supervision of child</td>
<td>8</td>
<td>16</td>
<td>2.20 (1.29-3.96)‡</td>
</tr>
<tr>
<td>Regular cigarette smoking in presence of child</td>
<td>14</td>
<td>39</td>
<td>3.98 (2.60-6.09)‡</td>
</tr>
<tr>
<td>Poor paternal maintenance of home</td>
<td>4</td>
<td>12</td>
<td>3.48 (1.71-7.08)‡</td>
</tr>
</tbody>
</table>

*CI indicates confidence interval.
†Paternal behaviors that were not significantly associated with maternal psychiatric disorders are not included in this table.
‡Remained significant after controlling for offspring age, sex, and difficult temperament during childhood, for parental education, and for offspring psychiatric disorders during early adolescence.
disorders had an adjusted mean (SD) of 3.93 (3.00) maladaptive behaviors. This difference remained significant after controlling for the same covariates (F_{592}=116.09, P<.001).

ASSOCIATION BETWEEN MALADAPTIVE PARENTAL BEHAVIOR AND OFFSPRING PSYCHIATRIC DISORDERS

Maladaptive parental behavior was associated with increased offspring risk for anxiety, depressive, disruptive, personality, and substance use disorders during late adolescence and early adulthood after the covariates were controlled statistically. All of these associations remained significant after parental psychiatric disorders were controlled statistically (Table 4). Offspring psychiatric disorders increased markedly in prevalence as the number of maladaptive parental behaviors increased. The same pattern of findings was obtained when the analyses were repeated using an index of maladaptive parental behavior based solely on the maternal interviews and an index of offspring psychopathology based solely on the offspring interview during early adulthood. Supplemental analyses indicated that persistent maladaptive parental behavior was associated with higher offspring risk for psychiatric disorders than was episodic maladaptive parental behavior.

Maladaptive maternal (adjusted odds ratio [AOR], 1.38; 95% confidence interval [CI], 1.22-1.55; P<.001) and paternal behavior (AOR, 1.19; 95% CI, 1.06-1.34; P=.003) were independently associated with increased offspring risk for psychiatric disorder. The statistical interaction of maladaptive maternal and paternal behavior did not predict offspring risk for psychiatric disorder, although the addition of 1 maladaptive maternal and paternal behavior was associated with a 64% increase in offspring risk for psychiatric disorder.

ASSOCIATION BETWEEN PARENTAL AND OFFSPRING PSYCHIATRIC DISORDERS

Parental psychiatric disorders were associated with increased offspring risk for anxiety, depressive, disruptive, personality, substance use, and any psychiatric disorders during late adolescence and early adulthood after the covariates were controlled statistically (Table 5). However, none of these associations remained significant after controlling for maladaptive parental behavior. The same pattern of findings was obtained when the analyses were repeated using an index of the total number of maternal and paternal disorders in each family. Supplemental analyses indicated that persistent parental psychiatric disorders were associated with higher offspring risk for psychiatric disorders than were episodic parental psychiatric disorders.

Maternal (AOR, 2.38; 95% CI, 1.58-3.58; P<.001) and paternal (AOR, 1.62; 95% CI, 1.08-2.43; P=.02) psychiatric disorders were independently associated with offspring risk for psychiatric disorder. Neither the interaction of maternal and paternal psychiatric disorders nor the interaction of parental psychiatric disorders with maladaptive parental behavior was associated with offspring risk for psychiatric disorder. As the Figure indicates, the overall increases in offspring risk for psychiatric disorders as a function of maladaptive parental behavior were nearly identical among the offspring of parents with and without psychiatric disorders.

ASSOCIATIONS BETWEEN SPECIFIC TYPES OF PARENTAL AND OFFSPRING PSYCHIATRIC SYMPTOMS

As Table 6 indicates, symptoms of parental and offspring anxiety, depressive, disruptive, personality, and substance use disorders were significantly associated after parental education, offspring age, sex, difficult childhood temperament, and early adolescent psychiatric disorders were controlled statistically. Maladaptive parental behavior was associated with symptoms of offspring anxiety, depressive, disruptive, personality, and substance use disorders after the covariates listed above, and parental psychiatric symptoms were controlled statistically. Substantial reductions in the magnitudes of the associations between parental and offspring psychiatric symptoms were observed when maladaptive parental behavior was controlled statistically.

PARENTAL DISORDERS, PARENTAL BEHAVIOR, AND OFFSPRING PSYCHIATRIC DISORDERS DURING EARLY ADULTHOOD

Although statistical controls were used in the above analyses to minimize the influence of preexisting offspring psychopathology, it would have been possible to further reduce the influence of preexisting offspring psychopathology by restricting the analyses to associations involving only those offspring disorders that were present during early adulthood.
ent during early adulthood. However, small numbers of cases precluded such analyses regarding the 5 specific types of offspring psychiatric disorders. There was sufficient statistical power to permit analyses regarding the overall association between parental disorders, maladaptive parental behavior, and offspring psychiatric disorders during early adulthood. Results were consistent with the findings reported above: parental psychiatric disorders were associated with increased offspring risk for psychiatric disorders during early adulthood before (OR, 1.67; 95% CI, 1.27-2.19), but not after, controlling for maladaptive parental behavior (AOR, 1.19; 95% CI, 0.87-1.64).

**COMMENT**

The present findings suggest that maladaptive parental behavior may play an important role in the association between parental and offspring psychopathology. In the present study, maladaptive parental behavior met all of the statistical criteria required to indicate that it mediated this association: parental psychopathology was associated with maladaptive parental behavior and with increased offspring risk for psychiatric disorders during late adolescence and early adulthood, and maladaptive parental behavior was associated with elevated offspring risk.
for psychiatric disorders after parental psychiatric disorders were controlled statistically.

Such findings are of particular interest because it may be possible to prevent the onset of psychiatric disorders among many children and adolescents by helping parents to modify their child-rearing behavior. Importantly, our findings suggest that maladaptive parental behavior may play a significant role in the development of offspring psychiatric disorders whether or not the parents have psychiatric disorders. The present findings also indicate that some parents with psychiatric disorders do not behave in a particularly maladaptive manner while raising their children, and that their offspring may not be at substantially elevated risk for psychiatric disorders. Because some types of maladaptive parental behavior are relatively common in our society, our findings suggest that it may be important to educate the public about the kinds of parental behavior that are most strongly associated with risk for mental disorders among offspring.

These data are consistent with previous research indicating that parental psychopathology is associated with maladaptive parental behavior, that maladaptive parental behavior is associated with offspring risk for psychopathology, that a substantial proportion of the intrafamilial association involving several types of psychiatric disorders is accounted for by environmental factors, and that the effects of parental behavior on offspring behavior have sometimes been underestimated because the unique or “nonshared” aspects of the relationship between each child and his or her parents have not been adequately recognized. At the same time, it is also important to note that there is evidence indicating that genetic factors may play a predominant role in the intrafamilial transmission of some types of mental disorders, including schizophrenia and bipolar disorder, which were too rare to investigate in this study.

As noted above, previous research has indicated that parenting can be adversely affected by parental psychopathology and offspring temperament, both of which seem to be determined in part by genetic factors. In this regard, our findings indicating that the association between maladaptive parental behavior and subsequent offspring psychiatric disorders was not attributable to the effects of parental psychopathology, offspring temperament, or offspring psychiatric disorders during early adolescence are of particular interest. It will, nevertheless, be of interest for future research to investigate whether genetic factors that are not expressed in the phenotypic form of either parental psychopathology or difficult offspring temperament may play a role in the association between maladaptive paternal behavior and offspring psychopathology. It will also be of interest for future research, designed to optimize the detection of genetic influences on behavior, to investigate whether a shared genetic liability for parental psychopathology and maladaptive parental behavior may affect parental behavior even in the absence of parental psychiatric disorder, and whether indirect genetic effects may adversely influence parental behavior through their association with environmental adversities.

The limitations of the present study require consideration. Because the fathers were not interviewed, data from the maternal and offspring interviews were used to assess paternal behavior and psychopathology. We considered restricting the focus of this article to the association between maternal psychiatric disorder, maladaptive maternal behavior, and offspring psychiatric disorder. However, our concerns about the paternal data were outweighed by the enhanced contribution to the field that results from the inclusion of data regarding both biological parents. Confidence in the validity of the paternal data was increased because the present findings are consistent with regard to the mediational roles of maladaptive maternal and paternal behavior, and because the present findings regarding the estimated prevalence of paternal disorders are similar to the findings of major epidemiological studies. Another limitation is the absence of systematic observational data on parent-child interactions. Several studies have indicated that observer ratings of parental and offspring behavior tend to yield higher estimates of the role of the environment in the association between parental and offspring behavior than are obtained when parental ratings are used. Nevertheless, the unique methodological strengths of the present study permit the findings of this investigation to contribute to an increased understanding of the role of pa-
rental behavior in the association between parental and off-
spRING psychiatric disorders.

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