

Psychopathology in Offspring of Mothers with Borderline Personality Disorder: A Pilot Study

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Objective: Children of mothers with borderline personality disorder (BPD) were hypothesized to be at greater risk for psychopathology, particularly impulse spectrum disorders, than children of mothers with other personality disorders.

Method: Twenty-one index children were compared with 23 children of mothers with a nonborderline personality disorder. Diagnoses were obtained using the Kiddie Schedule for Affective Disorders and Schizophrenia–Episodic Version (KSADS-E) and the Child Diagnostic Interview for BPD (CDIB), and functioning was rated with the Child Global Assessment Schedule (CGAS). Physical, sexual, and verbal abuse, as well as family violence and placements, were also assessed.

Results: The children of the borderline mothers, as compared with controls, had more psychiatric diagnoses, more impulse control disorders, a higher frequency of child BPD, and lower CGAS scores. There were no differences between the groups for trauma.

Conclusion: The offspring of borderline mothers are at high risk for psychopathology.

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Key Words: child borderline personality disorder, trauma, high-risk offspring

Borderline personality disorder (BPD) is a disorder with serious and long-term impairment in functioning (1). Three-quarters of this population are female, and most are in their childbearing years (2). While relatively few borderline women actually have children (3), the parenting skills of those

who do may be impaired by the mood lability, irritability, impulsivity, and reality distortion that characterize this disorder (4).

Unlike the extensive studies of the offspring of mothers with other psychiatric conditions, there have been no empirical studies of the risk of psychopathology in children of BPD mothers. Genetic vulnerability to BPD, however, is suggested by the results of family studies of adult relatives of borderline patients. The morbid risk of BPD in first-degree relatives is as high as 15.3%, with alcoholism and recurrent depression as the most frequent diagnoses (5). It has also been shown that disorders associated with impulsive and affectively labile traits are more common in these relatives (6). In light of these findings, one might expect that the offspring of borderline mothers would also be at risk for many forms of psychopathology. In view of evidence that BPD is consistently related to impulsive spectrum disorders (7), one might expect that impulsive symptomatology would be particularly common. Another possible risk in this population is childhood BPD, a diagnosis that has received some degree of validation in recent research (8). The present study, therefore, aims to extend the findings from family studies to the offspring of borderline mothers.

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Table I

Demographic Characteristics of Borderline and Nonborderline Families

	Index	Control
Number of families	9	14
Total number of children	21	23
Mean number of children per family	2.3	1.6
Number of mothers married or in stable relationships	5	9
Sex of children:		
Males	11	11
Females	10	12
Mean age of children (years):		
Males	11	9
Females	13	10

Retrospective studies of the early family experiences of borderline adults indicate that they more frequently recall being neglected and physically and sexually abused than controls (9). Children with BPD have also been shown to have experienced higher rates of abuse than children with other psychiatric disorders (10,11). It is not known whether children of borderline mothers have similar experiences.

Although most BPD patients do not have BPD mothers (5), the estimated 10% that do may represent a particularly high-risk subgroup in which both constitutional and environmental influences compound each other. We sought to evaluate whether abuse and family violence were more frequent in children of mothers with BPD, and whether these risk factors are associated with psychopathology in these children. In order to determine whether any findings would be specific to BPD, we chose a comparison group of the children of mothers with nonborderline personality disorders.

Method

Subjects

The subjects were the children of a sample of current or former patients of the psychiatry department of a university teaching hospital; the mothers had participated in a previous study of borderline versus nonborderline personality disorders in women (12). Only 24% of the borderline women and 28% of the control women in the original sample had ever had a child. Inclusion criteria for the current study required that the mother have a child over the age of 4, that the child be living with the mother or have done so for most of his or her life, and that the mother either have custody or permission from the legal guardian for the child's participation in the study. We excluded any children who had been raised for a significant period of time within an institution or foster

family, as well as children in the long-term custody of their fathers, since they could not be considered to have been raised by a personality-disordered mother.

Of the 14 borderline mothers eligible for the study, we recruited 9; of the 20 eligible control mothers, we recruited 14. Nonrecruitment was largely due to mothers having moved from the area or being unlocatable. One borderline and 2 control mothers refused to participate. There was no significant difference between borderline mothers who participated and those who did not in terms of occupational status, socioeconomic status, or marital status.

In view of the exploratory nature of this study and the limited pool of borderline women with children, we decided to include all the children of each mother. Although it would be ideal to use the family as the unit of analysis, there is a precedent in high-risk studies of children of parents with affective disorders to use the child as the unit of analysis (13). In those studies that analyzed data using both the child and the family as the unit of analysis, there were few if any differences in the results (14,15). In the present study, the child was the primary unit of analysis, but we also attempted to analyze differences by family.

The mean number of participant children in index families was 2.3, as compared with a mean of 1.6 participant children per family in the control group; this difference was not statistically significant. Index and control families also did not differ in socioeconomic status, marital status, family size, occupation, or age. The demographic characteristics of the sample can be found in Table I.

Measures

1) *Revised Diagnostic Interview for Borderline Personality Disorder (DIB-R)*. The DIB-R is a semistructured interview that has been shown to discriminate reliably between borderline and other forms of personality disorders (16). All mothers were assessed by an experienced interviewer (JP) who was blind to the chart diagnoses. A reliability check, which has been reported elsewhere (12), attained a κ for diagnostic agreement of 0.90.

There were also subjects who had clearly met the criteria in the past for BPD, but who had shown some degree of recovery from the disorder and did not presently meet DIB-R criteria, which require active symptomatology in the past 2 years. Using a procedure described in detail elsewhere (17), we diagnosed these subjects as "lifetime BPD" cases by modifying the DIB-R so that its questions referred to any previous 2-year period; subjects were assigned to the lifetime BPD group if they had met criteria at any such period in the past. We included them in our index group, since all such subjects had shown active symptoms of BPD during the years when they were raising their children. The final sample of

borderline mothers, therefore, included 6 cases of current BPD and 3 lifetime cases.

The comparison group of nonborderline mothers was described using the Diagnostic Interview for Personality Disorders (DIPD) (18) to determine their Axis II diagnosis. If patients met the general DSM-III-R criteria for a personality disorder, but failed to meet criteria required by the DIPD for any specific disorder, they were diagnosed "not otherwise specified" (NOS). The distribution of personality disorders in the comparison group was as follows: 1 paranoid, 2 histrionic, 1 avoidant, 4 dependent, and 6 NOS.

2) *Family Trauma and Resilience Interview (FTRI)*. In view of the absence of any standardized interview measure of childhood trauma, the authors developed a semistructured interview to measure family trauma and resilience. Different clinicians administered the interview independently to the mother and to each child; clinicians then held a consensus meeting to assign scores on the trauma scales. The interview included an assessment of essential demographic information and asked about changes in school and household composition, parental substance abuse and criminal activity, marital conflict, parental separations and divorce, exposure to parental suicide, and witnessing domestic violence.

The categories of trauma included in the measure were 3 types of abuse (verbal, physical, and sexual), neglect, the experience of having witnessed violence, and any institutional placement. Each type of trauma was scored on scales measuring its parameters: for the abuse variables these were severity, frequency, parent as perpetrator, and number of perpetrators; for neglect and witnessing violence these were severity and frequency; while for institutional placement, the number of placements, up to a maximum of 6, was scored. These data were then summed to achieve a Total Trauma Score (range 0 to 50). Internal reliability of the scale was high, with an α of 0.82. The subscales were internally consistent, with an α of 0.90 for the physical abuse scale, 0.90 for the sexual abuse scale, and 0.94 for the verbal abuse scale. The scale was cross-validated by comparison with the Conflict Tactics Scale (CTS) (19), which is a standardized, widely used measure of family violence. There were statistically significant correlations between the physical abuse score on the FTRI and the maternal and child report of violence ($r = 0.29, P < 0.05$) and severe violence ($r = 0.32, P < 0.05$) on the CTS, and between the verbal abuse score on the FTRI and the report on verbal aggression on the CTS ($r = 0.29, P < 0.05$); the score on witnessing violence on the FTRI correlated with the children's reports of maternal violence on the CTS ($r = 0.32, P < 0.05$).

3) *Kiddie Schedule for Affective Disorders and Schizophrenia—Episodic Version (KSADS-E)*. Diagnosis in

the offspring was determined with this instrument by clinicians trained in its use. This is a well-validated semistructured diagnostic interview that yields lifetime DSM-III-R diagnoses (20).

4) *Child Global Assessment Schedule (CGAS)*. This is a dimensional rating of functioning and overall impairment in children (21). The CGAS was independently rated by each KSADS interviewer, and a final consensus score was determined by the entire team.

5) *Child Diagnostic Interview for Borderlines (CDIB)*. This is a chart-review instrument based on the adult criteria for BPD that is designed to diagnose BPD in children (22). The CDIB includes 24 items that yield 5 subscales: social adaptation, impulsivity, affect, psychosis, and interpersonal relations. Adequate interrater reliability, similar to the adult DIB, has been found in other studies (22). We adapted the CDIB to be scored by team consensus ratings from data obtained on the KSADS; these ratings, therefore, were not made blind to KSADS diagnosis. This procedure followed the precedent of 2 previous studies in which a DIB diagnosis was determined either from the Schedule for Affective Disorders and Schizophrenia (23) or from the Diagnostic Interview Schedule (2).

Procedures

All potential subjects were contacted by a research assistant and invited to participate in a research project in which we would provide an evaluation of their children and family and a referral for follow up if indicated. Subjects were paid for their participation. Parents and children over the age of 14 were asked to sign an informed consent form.

One clinician met with the mother to administer a KSADS-E and FTRI for each of her children, while each child met with a different clinician. Following the clinical interviews, the assessment team met to produce consensus data on the KSADS-E, CDIB, and FTRI. The interviewer who had made the original diagnosis of the mother had no contact with either the clinician who assessed the children or the clinician who interviewed the mother about her children. The clinician administering the KSADS and the FTRI to the mother was blind to her diagnosis. Similarly, the clinicians who interviewed the children did not meet the mother and were blind to her diagnosis.

Results

Psychopathology in Index and Control Children

As shown in Table II, there was a significantly higher mean number of diagnoses in the index group than in the control group. Attention deficit hyperactivity disorder (ADHD) was also more frequent in the index group, while neither

	Index (n = 21)	Control (n = 23)	Statistic
Mean number of diagnoses	4.0 (2.1)	2.5 (2.3)	$t_{42} = 2.17$ $P < 0.05$
Attention deficit disorder (%)	43	13	$\chi^2 = 4.92$ $P < 0.05$
Disruptive behaviour disorder (%)	67	35	$\chi^2 = 4.46$ $P < 0.05$
Borderline personality disorder (%)	33.3	8.7	$\chi^2 = 4.50$ $P < 0.05$
Mean CDIB score	4.8 (2.7)	3.1 (2.5)	$t_{42} = 2.15$ $P < 0.05$

oppositional defiant disorder (ODD) alone nor conduct disorder (CD) alone were significantly more frequent in the index group. When these 3 disorders were combined as disruptive behaviour disorders, however, there were significantly more frequent diagnoses in the index group. BPD of childhood was also significantly more prevalent in the index group.

Mean CGAS scores were significantly lower in the index children and were in the nonfunctional range, with at least a moderate degree of interference in functioning in most social areas or severe impairment of functioning in one area. In contrast, the control group was in the disturbed but functional range. There was a strong and significant inverse correlation between number of diagnoses and level of functioning ($r = 0.74$, $P < 0.0001$).

Psychopathology in Index and Control Families

In order to determine whether the differences found in the analysis by child were also significant considering the family as a unit, and following the precedent in a study by Hammen and others (14), we developed measures of family psychopathology by averaging the number of diagnoses and CGAS

and CDIB scores across all the children in each family. We also tabulated the presence of specific diagnoses in at least one child for each family. These analyses allowed us to compare the 9 index and 14 control families; the findings are summarized in Table III. As can be seen from this table, several of our findings using the child as a unit of analysis were still significant, including mean CGAS scores, mean number of diagnoses, and frequency of attention deficit and disruptive behaviour disorders. ADHD was significantly more frequent in the index group on its own, as was ODD ($\chi^2 = 5.3$, $P < 0.05$).

Trauma

There were no statistically significant differences between the groups on any of the measures of abuse or of total trauma as measured by the FTRI. It should be noted that more than 90% of the children in each group were exposed to some form of trauma. For the index children, 24% had a history of placement outside the family, 33% had been sexually abused, 62% had been physically abused, and 57% were severely neglected. For the control children, 18% had been placed outside the family, 22% had been sexually abused, 83% were physically abused, and 48% were severely neglected.

For both groups of children combined, there was an association between trauma and psychopathological outcome. The total trauma score was significantly associated with poor outcome on the CGAS ($r = -0.40$, $P < 0.01$), the number of diagnoses ($r = 0.26$, $P < 0.05$), and the diagnosis of childhood BPD ($t_{33} = -2.38$, $P < 0.05$). Low scores on the CGAS were correlated with foster placement ($r = -0.35$, $P < 0.01$), sexual abuse ($r = -0.24$, $P < 0.05$), verbal abuse ($r = -0.42$, $P < 0.01$), and neglect ($r = -0.20$, $P < 0.05$), but not with physical abuse or witnessing violence.

Trauma and Maternal Borderline Pathology as Predictors of Outcome

The relative contributions of trauma and maternal diagnosis to impairment were tested with a hierarchical regression. Trauma was entered first to see the extent to which borderline psychopathology in the mothers was associated

	Index (n = 9)	Control (n = 14)	Statistic
Mean number of diagnoses	4.0 (1.8)	2.4 (1.7)	$t_{21} = 2.14$, $P < 0.05$
Families with children with attention deficit disorders (%)	77.8	21.4	Fischer's exact: $P < 0.01$
Families with children with disruptive behaviour disorders (%)	88.9	42.9	Fischer's exact: $P < 0.05$
Families with children with BPD (%)	44.4	14.3	Fischer's exact: NS
Mean CDIB score	4.6 (2.2)	3.2 (2.3)	$t_{21} = 1.39$, NS

with outcome above and beyond trauma. Sixteen percent of the variance could be explained by trauma alone ($F_{1,41} = 7.87$, $R^2 = 0.16$, $P < 0.001$). It was found that 20% of the variance in functioning could be explained by maternal diagnosis alone ($F_{1,41} = 12.54$, R^2 change = 0.20, $P < 0.001$). There was no significant interaction between these 2 sources of dysfunction.

The hierarchical regression was repeated using total CDIB score as an outcome measure. The results of the hierarchical regression using maternal diagnosis and trauma as predictors of CDIB showed that maternal diagnosis could explain an additional 8% of the variance in outcome ($F_{1,41} = 4.02$, R^2 change = 0.08, $P < 0.05$) beyond the effects of trauma, which explained 13% of the variance ($F_{1,41} = 5.96$, $R^2 = 13$, $P < 0.05$). Again, there was no interaction effect.

Thus, more than a third of the variance in CGAS ($R = 0.60$, $R^2 = 0.36$) could be explained by maternal diagnosis and trauma. Almost a quarter of the variance (21%) in borderline psychopathology of childhood could be explained by maternal diagnosis and trauma.

Discussion

The main finding of our study was that children of BPD mothers had a higher prevalence of psychiatric diagnoses, including childhood BPD, ADHD, and disruptive behaviour disorders than did the controls. In addition, they had lower CGAS scores. Moreover, all findings with the exception of childhood BPD remained significant when the data were analyzed by family. The results, therefore, parallel those of Links and others (5), who found a higher prevalence of impulsive spectrum disorders and of BPD in the first-degree relatives of adult borderline patients.

We did not find that a higher frequency of trauma accounted for the difference between our groups. In the regressions on both CDIB and CGAS scores, there was no interaction between diagnosis and total trauma scores, indicating that trauma had a similar effect on children in both index and control groups. These findings correspond to those in our study of psychological risk factors in the mothers; that is, there was a large overlap between borderline and nonborderline subjects for most measures of trauma (12).

There are several possible mechanisms for the increased risk in the children of BPD mothers. It is possible that the index children and their mothers have shared biological vulnerabilities, particularly for trait impulsivity. This could explain why the index children had more pathology, in spite of having a similar level of trauma as the controls. One explanation of the findings in the present study concerns family structure. In an examination of family variables in this sample (24), we found that the index families were more unstable, showing lower cohesion and organization than the controls. The index children were also more frequently

exposed to parental substance abuse and suicide attempts, and the fathers as a group were not protective (24). Our data do not allow us, however, to determine whether the contribution of family pathology to psychopathology in the children is biological, psychological, or both.

This study has several methodological limitations. The first was the small size of the sample. The second was the use of the child as the primary unit of analysis. Most of our findings were also significant by family, however, suggesting that the higher prevalence of specific types of psychopathology among index children was not entirely due to data derived from a few pathological families. A third limitation is that the mothers in both groups are described only by their Axis II diagnoses. The sample was too small to allow for analyses of subgroups, but comorbidity data might have shed additional light on the mechanisms by which the children were placed at risk by maternal psychopathology. A fourth limitation is that our sample of borderline mothers was heterogeneous, in that some of the subjects had already recovered from BPD. A larger sample would be required to determine whether this subgroup might differ from borderline mothers as a whole. Finally, we did not determine formal reliability for KSADS diagnosis, and there is a need for further validation studies for our FTRI.

The main strengths of this study were that all mothers and children were interviewed directly using standardized instruments and that the control group consisted of children of mothers with other personality disorders.

Clinical Implications

- Children of mothers with BPD had more psychiatric diagnoses, including BPD and disruptive behaviour disorders, and functioned less well than children of mothers with other personality disorders.
- Trauma alone cannot explain the excess risk to children of borderline mothers.
- Children of BPD mothers are at risk and should be assessed and followed accordingly.

Limitations

- Small sample size.
- Mothers were described only by Axis II diagnosis.
- Some of the borderline mothers had recovered at the time of the study.

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Résumé

Objectif : Vérifier l'hypothèse selon laquelle les enfants de mères atteintes de trouble de la personnalité limite (TPL) courent plus de risques de psychopathologie, surtout de trouble du spectre des impulsions, que les enfants de mères atteintes d'autres troubles de la personnalité.

Méthode : Comparaison de 21 enfants probants à 23 enfants de mères atteintes d'autres troubles de la personnalité. Les diagnostics sont posés grâce au *Kiddie Schedule for Affective Disorders and Schizophrenia-Episodic Version (KSADS-E)* et au *Child Diagnostic Interview for BPD (CDIB)*. On évalue le fonctionnement grâce à la *Child Global Assessment Schedule (CGAS)*, ainsi que la violence physique, sexuelle, verbale et familiale et les placements.

Résultats : Chez les enfants de mères atteintes de TPL, la fréquence de diagnostics psychiatriques, de troubles du contrôle des impulsions et de TPL est plus élevée, mais les résultats à la CGAS sont moindres, que chez les enfants du groupe de contrôle. Les groupes ne présentent aucune différence quant aux traumatismes.

Conclusion : Les enfants de mères atteintes de TPL courent un risque important de psychopathologie.