

SEVERITY OF BORDERLINE PERSONALITY SYMPTOMS IN ADOLESCENCE: RELATIONSHIP WITH MATERNAL PARENTING STRESS, MATERNAL PSYCHOPATHOLOGY, AND REARING STYLES

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The development of borderline personality disorder (BPD) has been associated with parenting styles and parental psychopathology. Only a few studies have examined current parental rearing styles and parental psychopathology in relationship to BPD symptoms in adolescents. Moreover, parenting stress has not been examined in this group. The current study examined 101 adolescents (14–19 years old) with BPD symptoms and their mothers. Assessments were made on severity of BPD symptoms, youth-perceived maternal rearing styles, and psychopathology and parenting stress in mothers. Multiple regression analyses were used to examine potential predictors of borderline severity. No correlation was found between severity of BPD symptoms in adolescents and parenting stress. Only youth-perceived maternal overprotection was significantly related to BPD severity. The combination of perceived maternal rejection with cluster B traits in mothers was significantly related to BPD severity in adolescents. This study provides a contribution to the disentanglement of the developmental pathways that lead to BPD.

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In the past decade, much research has been focused on disentangling the developmental pathways that lead to a diagnosis of borderline personality disorder (BPD; Chanen & Kaess, 2012; Fruzetti, Shenk, & Hoffman, 2005; Livesley, 2008). It is now widely accepted that BPD develops from a combination of a strong genetic predisposition and environmental factors (Distel et al., 2011; Gunderson et al., 2011). However, most studies on environmental factors that have been conducted in adult BPD patients are retrospective, and therefore prone to recall bias (Hufford & Shiffman, 2003). Yet it is important to comprehend the mechanisms that lead to BPD at an early stage in order to enable prevention, early detection, and intervention (Chanen, Jackson, et al., 2008). Early interventions, in particular, may prevent poor outcomes in adulthood (Cohen, Crawford, Johnson, & Kasen, 2005; Zerkowicz et al., 2007). The current study focuses on current maternal rearing styles, maternal psychopathology, and parenting stress in a group of adolescents with BPD symptoms and their mothers.

PARENTAL REARING

Different parental rearing styles and attachment have long been associated with different types of psychopathology in offspring (e.g., Bowlby, 1977; Parker, 1983). Many BPD patients report that they perceive their rearing by their primary caregivers as seriously deficient (e.g., Zanarini et al., 1997; Zweig-Frank & Paris, 1991). It has been suggested that separation and attachment play an important role in the development of BPD (Fonagy & Bateman, 2008; Kernberg, Yeomans, Clarkin, & Levy, 2008). More specifically, a strong association between insecure and disorganized attachment and BPD has been found (for a review, see Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004). Building on attachment theory, Linehan (1993) formulated a biosocial theory that BPD symptoms are the result of a combination of an invalidating environment and a biological predisposition to emotional vulnerability. A cognitive model proposed by Young (Kellogg & Young, 2006) presumes that BPD develops when basic childhood needs are inadequately met, which leads to maladaptive ways of thinking, feeling, and behaving.

Inconsistent treatment and emotionally withdrawn and/or overcontrolling parenting have been associated with an increased risk for the development of BPD (Johnson, Cohen, Chen, Kasen, & Brook, 2006; Zanarini et al., 1997). Other studies have used different concepts and the terms *low parental care* and *overprotection*, which have also been found to be associated with BPD (Nickell, Waudby, & Trull, 2002; Timmerman & Emmelkamp, 2005; Zweig-Frank & Paris, 1991). Although this is valuable information, the interpretation of it requires caution. Most studies have examined community samples of students as informants, looking retrospectively at their upbringing. The perception of (maladaptive) parenting might be influenced by typical BPD traits such as emotional dysregulation and interpersonal difficulties.

Studies based on current parenting are useful to complement retrospective studies. Bezirgianian, Cohen, and Brook (1993) conducted a longitudinal community study called the Children in the Community study (CIC; $N = 776$; mean age 16.4, $SD 2.8$, range 11–20 years) and found that maternal inconsistency was predictive for BPD in offspring, but only in combination with overinvolvement. In another publication about the CIC study, Johnson et al. (2006) reported on parental behavior assessed by several semistructured interviews with mothers and offspring. They found low parental affection and aversive parenting behavior to be associated with an elevated risk for the development of personality disorders (including BPD) in the children. More recently, Winsper, Zanarini, and Wolke (2012) reported on a longitudinal study of children and their mothers ($N = 6,050$). These authors found an increased risk for BPD symptoms in children at age 11 who were growing up with parents characterized by more conflicts and/or suboptimal parenting as defined by hostility, resentment, and hitting or shouting. The authors also found that children with poor cognitive abilities or more psychiatric problems at the age of 8 were more prone to developing BPD symptoms.

PARENTAL PSYCHOPATHOLOGY

Another risk factor considered to play a part in the development of BPD is parental psychopathology. Several studies have shown that children of mothers with a diagnosis of BPD have an increased risk of emotional and behavioral problems, including borderline personality symptoms (for a review, see Stepp, Whalen, Pilkonis, Hipwell, & Levine, 2011). The CIC study specifically focused on offspring of parents with psychiatric disorders, using several standardized interviews both with mothers and their offspring. Contrary to expectations, the authors found no elevated risk for personality disorders (PDs) (Johnson et al., 2006; Johnson, Liu, & Cohen, 2011). However, another study showed stronger associations between PD symptoms and negative parenting styles in students who were raised by a parent with PD, as compared with students raised by a parent without PD (Cheng, Huang, Liu, & Liu, 2011). Although several studies have indicated various parental risk factors in the development of BPD, associations between factors are only sporadically reported. However, it is conceivable that some of the factors that have been explored are not associated with BPD symptoms per se, but only in the co-occurrence with another factor, as was seen in the CIC study (Bezirgianian et al., 1993).

PARENTING STRESS

In addition to parental rearing behavior, increased levels of parenting stress have been found to be associated with psychopathology (Pesonen, Rääkkönen, Heinonen, & Komsu, 2008; Semke, Garbacz, Kwon, Sheridan, & Woods, 2010). Although the relationship between parenting stress and

psychopathology is thought to be reciprocal, Pesonen and colleagues (2008) found that the effect of parenting stress on certain child characteristics appears to be greater than the inverse. To the best of our knowledge, parenting stress has not yet been evaluated in the context of adolescent BPD.

CURRENT STUDY

The current study explores characteristics of maternal rearing styles, maternal psychopathology, and parenting stress in mothers of adolescents with BPD traits who were referred for treatment to an outpatient clinic. Assessments included both adolescents and their biological mothers. We hypothesized that the severity of BPD symptoms in adolescents would be positively influenced by emotionally warm and supportive parenting (low rejection, high emotional warmth, low overprotection) and low levels of psychopathology in mothers (personality disorder traits and general psychopathology). Next, we explored the role of parenting stress in relation to the severity of BPD symptoms in adolescents. Based on the findings of studies on various psychopathological problems in children and adolescents and their relation to parenting stress, we hypothesized that increased levels of parenting stress would be associated with increased levels of BPD severity in adolescents. Furthermore, we explored to what extent perceived maternal rearing, maternal psychopathology, and parenting stress could predict severity of BPD symptoms in adolescents.

METHOD

PARTICIPANTS

Demographic characteristics of the adolescents are shown in Table 1. The sample consisted of adolescents ($N = 101$; 96% female; mean age 16.3 ($SD 1.15$); range 14.0 to 18.7 years) referred to Emotion Regulation Training (ERT; van Gemert, Ringrose, Schuppert, & Wiersema, 2009) and their mothers. Five mental health centers in the Netherlands participated in the study. ERT is a treatment module for adolescents with BPD symptoms. Inclusion criteria were age 14–19, $IQ \geq 80$ (according to school results), and two or more BPD symptoms as assessed by SCID-II (Weertman, Arntz, & Kerkhofs, 2000). The mean number of SCID criteria for BPD was 6.02 ($SD 1.99$). Full criteria for a BPD diagnosis were fulfilled by 75.2% of participants. Exclusion criteria were psychotic disorders, conduct disorder, or serious addiction to drugs or alcohol. The corresponding chapters of the Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; (Kaufman et al., 1997) were used to examine exclusion criteria. Both adolescents and their mothers received a €5 gift voucher after the assessment.

The medical ethics committee of the Department of Psychology Gronin-

TABLE 1. Demographics

	Adolescents (N = 101) ^a
Age, Mean (SD)	16.32 (1.15)
Female	97 (96.0%)
Parents divorced	58 (50.0%)
Living with mother	47 (46.5%)
Living with father	4 (4.0%)
Foster care	4 (4.0%)
Clinical setting	6 (5.9%)
Contact with justice system	29 (29.9%)
Non-Caucasian parent	16 (16.3%)
SCID-II items, Mean (SD)	6.02 (1.99)
SCID-II BPD diagnosis	76 (75.2%)

^aDue to missing data, N varies from 98 to 101.

SCID-II items: number of borderline personality disorder (BPD) criteria according to the Structured Clinical Interview for *DSM-IV* Personality Disorders (SCID-II); SCID-II BPD diagnosis: five or more BPD criteria according to SCID-II.

gen approved the study. Written informed consent was obtained after participants were given extensive information about the study.

MEASURES COMPLETED BY ADOLESCENTS

The Structured Clinical Interview for *DSM-IV* Personality Disorders (SCID-II; Weertman et al., 2000) was developed for assessment of personality pathology in adults, but the interview is frequently used in adolescents as well (Chanen, Jovev, et al., 2008). We used the BPD section to assess borderline pathology.

The Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children—Present and Lifetime version (K-SADS-PL; Kaufman et al., 1997) is a frequently used semistructured interview based on *DSM-IV* criteria. The *disruptive behavior disorders* and *psychotic disorders* modules were used to obtain information on exclusion criteria.

To assess child-perceived maternal parenting, the EMBU-C was used. EMBU is a Swedish acronym for “my memories of upbringing.” We used the Dutch version described by Markus, Lindhout, Boer, Hoogendijk, and Arrindell (2003). In previous studies, the reliability of the subscale Favoring Subject proved to be low (Oldehinkel, Veenstra, Ormel, de Winter, & Verhulst, 2006), and this was also the case in our study. We therefore removed this subscale from further analysis. The remaining list consisted of 47 items spread over three factors: Emotional Warmth (19 items), Rejection (17 items), and Overprotection (11 items). EMBU-C has been frequently used and evaluated; psychometric properties are good (Markus et al., 2003; Oldehinkel et al., 2006).

The severity of borderline symptoms was assessed by the Borderline Personality Disorder Severity Index-adolescent version (BPDSI-IV-ado), a semistructured interview that contains 72 items spread over the nine BPD criteria in *DSM-IV* (American Psychiatric Association, 2000). The instru-

ment is based on the version for adult BPD patients (BPDSI-IV; Giesen-Bloo, Wachters, Schouten, & Arntz, 2010) and was adapted for adolescents (Schuppert, Bloo, Minderaa, Emmelkamp, & Nauta, 2012). It was developed as a treatment outcome measure and is suitable for the measurement of BPD severity. Its psychometric properties are good (Schuppert, Bloo, et al., 2012).

MEASURES COMPLETED BY MOTHERS

The 25 item Parenting Stress Index-short form (PSI-sf; de Brock, Vermulst, Gerris, & Abidin, 1992) measures the amount of stress parents experience in daily life.

The Symptom Checklist-90-R (SCL-90-R; Derogatis, Lipman, & Covi, 1973) assesses general psychopathological complaints and is a frequently used self-report questionnaire consisting of 90 items. Several studies have shown good validity and reliability (e.g., Arrindell, Barelds, Janssen, Buwalda, & van der Ende, 2006). We used the total score to assess general psychopathology in mothers.

The Personality Disorders Questionnaire 4+ (PDQ-4+) is a self-report questionnaire assessing personality disorders in *DSM-IV*. It consists of 99 items. We used the Dutch version by Akkerhuis, Kupka, van Groenestein, and Nolen (1996). The PDQ was added to assess personality traits in mothers. It is well known that there is significant overlap between personality disorders, especially within *DSM-IV* clusters. Therefore, we used sum scores for three clusters: A, B, and C.

ASSESSMENTS

Assessments were made by three independent research psychologists. Interviewers were trained during a half-day course and were subsequently observed by an experienced interviewer in two or three interviews. Consensus meetings occurred regularly during the assessment period. A clinical psychology student and a psychologist made second ratings on 15% of the borderline severity interviews (BPDSI-IV-ado). In addition, 10% of the diagnostic BPD interviews (SCID-II) were rated by the first author.

DATA ANALYSIS

The software SPSS-19 was used to analyze all data with 5% significance levels. Because most data were not normally distributed, non-parametric tests (Kendall's τ) were used to examine correlations between variables. Multiple regression was conducted to examine whether maternal rearing styles, maternal psychopathology, and parenting stress contributed to severity of borderline symptoms in the adolescents. First, *z*-scores of all variables were derived and entered in the model together with second-order interactions between variables. Variables were then removed in a step-

down procedure: After the removal of a variable with a significance level of $p > .1$, the analysis was repeated with the remaining variables. This procedure was repeated until all variables and second-order interactions between variables that were not significant ($p > .1$) were removed. In the next step, the remaining variables and second-order interactions were entered in the model. If the second-order interaction was significant, both main effects of the concurrent variables were also maintained in the model, even if not significant in themselves. A moderator analysis has been carried out on the final model.

RESULTS

The intraclass correlation coefficients (ICCs) for the subscales of the BPDSI ranged from 0.98 to 1.00, with an exception for the subscale Identity Disturbance (0.89). The ICCs for the nine items of the SCID-II BPD section ranged from 0.89 to 0.97.

Table 2 shows the means and standard deviations of all variables, and the correlations between variables. Borderline severity in adolescents was strongly correlated with perceived maternal overprotection (Kendall's $\tau = .24$, $p < .001$), but not with any other variable, particularly not with parenting stress. General psychopathology (as assessed with the SCL-90) in mothers and all three clusters of personality symptoms in mothers (as assessed with the PDQ-4) were highly significantly correlated. Also, the three perceived maternal rearing styles (assessed with the EMBU-C—emotional warmth, rejection, and overprotection—were significantly correlated. Parenting stress as reported by the mothers showed a significant correlation with perceived maternal rejection and emotional warmth, and with general psychopathology in mothers, but not with perceived maternal overprotection or maternal personality symptoms.

The results of the final model are shown in Table 3 and visualized in Figure 1. Multiple regression analysis revealed that only perceived maternal overprotection ($B = 4.06$, $p < .001$) was significantly correlated with severity of borderline symptoms. Higher levels of maternal overprotection reported by the adolescents was strongly associated with higher levels of BPD severity. Considering the second-order interactions between variables, only the interaction between perceived maternal rejection and cluster B symptoms in mothers showed a significant relation with severity of BPD symptoms in adolescents ($B = -4.02$, $p = .02$). Low levels of rejection in combination with low levels of cluster B traits in mothers were associated with lower BPD severity in adolescents. Also, the combination of high levels for these two factors was associated with lower BPD severity in adolescents. The combination of high levels of rejection and low levels of cluster B traits in mothers was associated with higher severity of BPD symptoms. The combination of low levels of rejection and high levels of cluster B traits in mothers was associated with increased BPD severity in adolescents.

TABLE 2. Correlations and Means (SD); Kendall's τ

	1	2	3	4	5	6	7	8	9
1. Adolescent borderline severity	19.3 (10.4)								
2. Maternal parenting stress	.03	86.7 (26.0)							
3. EMBU-EW	-.06	-.21**	55.3 (12.2)						
4. EMBU-R	.13	.26***	-.31***	27.6 (7.0)					
5. EMBU-O	.24***	.11	.16*	.19**	24.5 (5.3)				
6. Maternal SCL-90	.01	.15*	-.01	.15*	.00	127.9 (33.3)			
7. Maternal PDQ-A	-.09	-.10	.04	-.03	-.03	.26***	3.8 (3.8)		
8. Maternal PDQ-B	.03	-.07	-.03	.06	-.05	.34***	.46***	3.2 (2.9)	
9. Maternal PDQ-C	.02	-.03	-.01	-.02	-.14	.32***	.34***	.48***	5.2 (3.3)

EMBU = parental rearing style child version; EW = emotional warmth; R = rejection; O = overprotection; SCL-90 = Symptom Checklist 90; PDQ cluster A/B/C = Personality Disorders Questionnaire cluster A/B/C (corresponds with DSM-IV). * $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 3. Results of the Final Multiple Regression Model

	B	SE	p	95% CI		Partial η^2
				Lower	Upper	
Intercept	19.48	1.23	< .000	17.03	21.93	.78
EMBU-O	4.53	1.36	.001	1.83	7.24	.14
EMBU-R	.50	1.78	.28	-3.04	4.04	.00
Cluster B	2.66	1.89	.16	-1.10	6.43	.03
EMBU-R \times PDQ cluster B	-8.49	3.19	.01	-14.85	-2.12	.09

SE = standard error; CI = confidence interval; EMBU = parental rearing style child version; R = rejection; O = overprotection; PDQ cluster B = Personality Disorders Questionnaire cluster B (corresponds with *DSM-IV*). Predictor variables have been standardized. Dependent variable: borderline severity.

All analyses were repeated excluding male subjects. This did not alter the conclusions.

DISCUSSION

The present study evaluated the relationship between the severity of BPD symptoms, maternal rearing styles, parenting stress, and maternal psychopathology in a clinical sample of 101 adolescents with BPD traits and their mothers.

Our results can be summarized as follows: (a) We found no correlation between the severity of BPD symptoms and parenting stress. (b) Perceived maternal rejection and emotional warmth, and general psychopathology

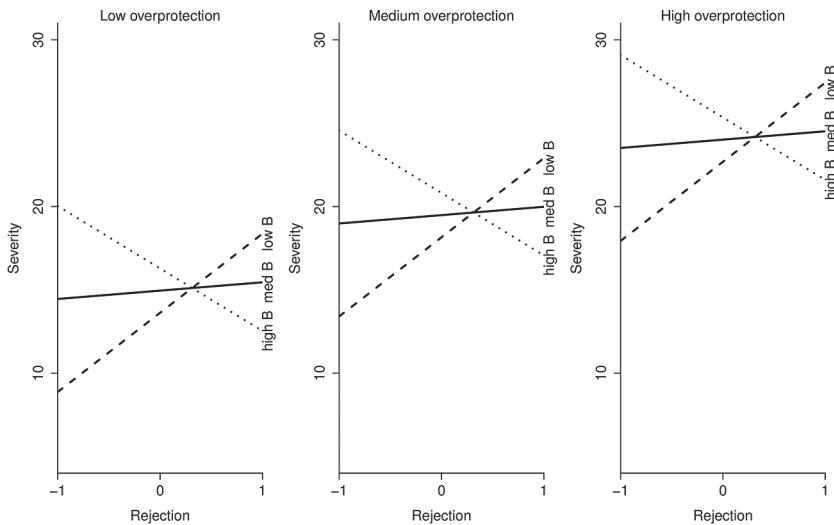


FIGURE 1. Visualization of the moderator analysis in Table 3.

The relationship between Rejection and Borderline Severity for various choices of Cluster B personality and Overprotection. Respectively, low, medium and high overprotection correspond to values 1 SD below average, average, and 1 SD above average. Because of the skewed character of Cluster B, low and high values correspond to 1/2 SD below/above average.

in mothers, showed a significant association with parenting stress. (c) Perceived maternal overprotection was the only rearing style that was significantly associated with severity of BPD symptoms. (d) Low levels of rejection in combination with low maternal cluster B symptoms were associated with low rates of adolescent borderline severity. In addition, high rejection and high maternal cluster B symptoms were associated with fewer borderline symptoms in youth. The combination of high levels of perceived maternal rejection and low levels of cluster B personality traits in mothers was associated with lower levels of BPD severity, as well as the reverse (low rejection and high cluster B in mothers was associated with lower BPD severity in adolescents).

To the best of our knowledge, there is no study that reports on parenting stress and personality disorder symptomatology. However, parenting stress has been examined in other psychiatric disorders in children and adolescents (e.g., Epstein, Saltzman-Benaiah, O'Hare, Goll, & Tuck, 2008; Pesonen et al., 2008; Semke et al., 2010). It is remarkable that in all these studies, psychopathology in the child was associated with increased levels of parenting stress, which is in contrast to our findings. High levels of parenting stress have previously been associated with negative parenting behavior, which in turn has been linked to an increase in behavioral problems in adolescence (Anderson, 2008). In our study, lower levels of perceived maternal emotional warmth and higher levels of maternal rejection were associated with increased levels of parenting stress. A study by Bennett, English, Rennoldson, and Starza-Smith (2012) found locus of control to be the strongest predictor of parenting stress in parents of children with brain tumors. Although this is a completely different sample, the mechanisms might be comparable. Both rejecting parenting and cold and distant parenting might reflect a lack of locus of control. Moreover, Bennett et al. found that child disability and problem behavior did not contribute to parenting stress, which is in line with our results.

With regard to parenting styles, we found only the maternal rearing style overprotection (reported by the adolescents) to be associated with higher levels of borderline severity in adolescence. There are several possible explanations for this association. Adolescents with severe BPD will generate worry and concern in their relatives. Parents might overprotect them in order to prevent further decline. Another explanation might be that parents who have a tendency to overprotect their children might arouse BPD problems in adolescents already vulnerable for BPD traits. Research on developmental pathways in other psychiatric disorders has found evidence for reciprocal effects of parenting and child behavior. For instance, low parental warmth predicted higher levels of depressed mood in a sample of 7- to 12-year-old girls ($N = 2,451$), and vice versa: Depressed mood predicted decreases in parental warmth (Hipwell et al., 2008). Our findings are in line with the CIC study (Johnson et al., 2006), which found overcontrolling parenting to be associated with an increased risk for development of BPD. The other two parental rearing styles we ex-

amined, emotional warmth and rejection, were not significantly related to the severity of BPD symptoms. These findings differ from the findings of Cheavens et al. (2005), who examined a community sample of 202 undergraduates students (mean age 18.85 years), retrospectively reporting on their upbringing. The authors found a significant correlation between BPD symptoms and parental criticism. However, a formal diagnostic instrument for BPD symptoms or severity of symptoms was not used, and the retrospective design may have influenced their results. In conclusion, studies that examined current parental rearing behavior found a strong association between parental overprotection and borderline symptoms in youth.

In line with expectations, adolescents had the lowest rates of borderline symptoms if they experienced little rejection from their mothers in combination with little cluster B symptomatology in their mothers. However, the rest of the interaction effect is puzzling in the absence of main effects for maternal rejection and maternal cluster B symptoms.

There are some considerations to be noted. We used a cross-sectional design, so no causal inferences can be made. Furthermore, our sample consisted almost entirely of girls, so generalization to a mixed population requires caution. In our sample, 50% of the parents were divorced, 37% of the adolescents lived with their mothers, 4% lived with their fathers, and 10% lived in a clinical setting or in foster care. We have no information on the amount of time these adolescents actually spent with their fathers or with their mothers. It is conceivable that the amount of stress reported by the mother is influenced by the amount of time the adolescent is living with her. The "absent" father may also have influenced the parenting behavior of the mother.

Another consideration is that the current sample included only youth with BPD symptoms, thus potentially limiting the variance of BPD symptomatology. Indeed, compared to nonclinical youth, mothers did have elevated levels of psychopathology, and their children did report a rearing style with more rejection and more overprotection (Schuppert, Albers, Minderaa, Emmelkamp, & Nauta, 2012). So, even though maternal characteristics differ in youth with BPD, the severity of BPD within the group hardly relates to maternal characteristics.

A strength of our study is that, as far as we know, the psychopathology of mothers and their parenting stress have rarely been examined in personality research. Another strength is that we used both adolescents and their mothers as informants. To the best of our knowledge, this is the first study that examined the effects of combined current maternal rearing behavior with maternal characteristics and parenting stress in a sample of adolescents with BPD traits.

Despite the growing body of evidence on the environmental pathways to BPD, much remains unclear. Our results suggest that parental overprotection, whether or not in combination with maternal personality traits, is an important factor. Our study is also the first to focus on parenting stress

as a risk factor for and/or result of severity of BPD symptoms in adolescents. Further research is necessary to confirm our cross-sectional focus, preferably in a longitudinal design. Our findings may contribute to a better understanding of moderators in the developmental pathways to BPD, and may lead to the development of family interventions that incorporate our results. Participation of family members is already part of some adolescent BPD treatment programs, such as Dialectical Behavior Therapy for Adolescents (DBT-A) (Miller, Rathus, & Linehan, 2007), and our results support the importance of such an approach. The addition of systemic interventions to early treatment programs, together with attention to psychopathology in mothers, may help to improve the interpersonal relationship between adolescents and their mothers and may help to prevent the poor outcome so often seen in adult patients with BPD.

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