

Personality Disorders: Theory, Research, and Treatment

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Online First Publication, November 9, 2017. <http://dx.doi.org/10.1037/per0000265>

CITATION

Kurdziel, G., Kors, S., & Macfie, J. (2017, November 9). Effect of Maternal Borderline Personality Disorder on Adolescents' Experience of Maltreatment and Adolescent Borderline Features. *Personality Disorders: Theory, Research, and Treatment*. Advance online publication. <http://dx.doi.org/10.1037/per0000265>

BRIEF REPORT

Effect of Maternal Borderline Personality Disorder on Adolescents' Experience of Maltreatment and Adolescent Borderline Features

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Borderline personality disorder (BPD) is a severe and chronic mental illness. Self-reported borderline features correlate highly with a diagnosis (affective instability, negative relationships, unstable sense of self, self-harm). Etiological factors of BPD include childhood maltreatment. The current study compared the experience of maltreatment in adolescent offspring of mothers with BPD, who are themselves at risk of developing the disorder, with that of offspring of mothers with no current diagnosis. Participants were 56 adolescents aged 14 to 18 years. In all, 93% of the adolescents whose mothers had BPD experienced maltreatment compared with 60% of comparisons. Specifically, adolescent offspring of mothers with BPD experienced more physical abuse, emotional abuse, and neglect, but not more sexual abuse, than did comparisons. Dimensions of maltreatment (severity, multiple subtypes, chronicity) were associated with adolescents' own total borderline features. We discuss implications for the intergenerational transmission of BPD and for clinical interventions.

Keywords: borderline personality disorder, adolescence, maltreatment, mothers, borderline features

Borderline personality disorder (BPD) is a severe mental illness characterized by dysfunction, including lack of a stable sense of self, affective instability, negative relationships, and self-harm (American Psychiatric Association, 2013). These domains may also be assessed as self-reported borderline features along a continuum, which correlate highly with a BPD diagnosis (Morey, 1991). One important etiological factor for BPD is childhood maltreatment. Up to 71% of adults diagnosed with BPD report maltreatment in childhood (Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004; Widom, Czaja, & Paris, 2009), and both cross-sectional and prospective longitudinal studies have found that childhood maltreatment predicts the development of adult BPD above and beyond the family environment and parental mental illness (Bradley, Jenei, & Westen, 2005; Carlson, Egeland, & Sroufe, 2009).

Offspring of mothers with BPD are considered to be at a high risk for developing BPD themselves (Lenzenweger & Cicchetti, 2005; Macfie, 2009; Stepp, Whalen, Pilkonis, Hipwell, & Levine, 2012). Indeed, maternal BPD symptoms predict adolescent BPD symptoms (Stepp, Olino, Klein, Seeley, & Lewinsohn, 2013). Studies of offspring of mothers with BPD suggest that parent-

child relationships are maladaptive and that offspring of BPD have adverse outcomes compared with healthy comparisons (Eyden, Winsper, Wolke, Broome, & MacCallum, 2016), including putative precursors to BPD in young offspring (Macfie & Swan, 2009) and adolescents (Frankel-Waldheter, Macfie, Strimpfel, & Watkins, 2015; Mahan, Kors, Simmons, & Macfie, in press). Although many mothers with BPD have a history of childhood maltreatment, the experience of maltreatment in their adolescent offspring is unknown. This is an important omission because maltreatment is a key etiological factor in BPD, which is first diagnosed in late adolescence or early adulthood (American Psychological Association, 2013; Ludolph et al., 1990).

The percentage of maltreated offspring who have mothers who were also maltreated, or intergenerational transmission of maltreatment, is moderately high. Kaufman and Zigler (1987) estimated a 25% to 35% rate. In a more recent study, mothers' retrospective reports of maltreatment predicted maltreatment of their 10- to 12-year-old children at a rate of 43.7%, above and beyond romantic attachment, intimate partner violence, and psychological distress (Cort, Toth, Cerulli, & Rogosch, 2011). Therefore, it is vital to examine whether offspring of mothers with BPD experience higher rates of maltreatment compared with a normative sample. Moreover, given the adolescents' risk for developing BPD, it would also be important to assess their own self-reported borderline features (Morey, 1991) before they are old enough for a BPD diagnosis.

In a study of middle childhood, physical abuse and neglect, but not sexual abuse or emotional abuse, predicted children's self-reported total borderline features (Hecht, Cicchetti, Rogosch, & Crick, 2014). However, mothers' BPD was not assessed in the Hecht et al. (2014) study, and so, association with the risk of having a mother with BPD could not be assessed. Moreover,

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We thank the mothers and children who participated to make this study possible.

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children's borderline features appropriate for middle childhood may not predict a later BPD diagnosis, whereas adolescence is when BPD can first be diagnosed (Ludolph et al., 1990). We therefore sampled mothers diagnosed with BPD and normative comparisons along with their adolescent offspring's experience of maltreatment and their adolescents' own borderline features.

The goal of the current study was to examine the experience of maltreatment in adolescent offspring of mothers with BPD and to assess how maltreatment might be associated with the adolescents' concurrent borderline features. We examined maltreatment subtype (sexual abuse, physical abuse, neglect, emotional abuse), maltreatment dimensions of chronicity, severity, number of subtypes experienced, and adolescents' total borderline features. We assessed mothers' categorical diagnosis of BPD and adolescents' self-reported borderline features. We also assessed maltreatment as overlapping subtypes that were present or absent (sexual abuse, physical abuse, neglect, emotional abuse) and as distinct groups for each subtype, derived from assigning a child to a group based on a hierarchy of violation of social norms (Manly, Cicchetti, & Barnett, 1994).

The Current Study

In the present study, we hypothesized the following:

Hypothesis 1: The adolescent offspring of mothers with BPD would experience more maltreatment overall and more of each subtype of maltreatment (physical abuse, sexual abuse, neglect, and emotional abuse) and would report higher total borderline features than would normative comparisons.

Hypothesis 2: Maltreated adolescents would report more total borderline features than would nonmaltreated adolescents, and that total borderline features would differ across subtypes (physical, sexual, emotional, neglect) of maltreatment.

Hypothesis 3: In the sample as a whole, severity, chronicity, and number of subtypes of maltreatment would be associated with adolescents' total borderline features.

Method

Participants

Participants were 56 adolescents aged 14 to 18 years ($M = 15.78$, $SD = 1.21$) and their biological mothers. In all, 50% ($n = 28$) of the

mothers met criteria for BPD and 50% ($n = 28$) were free of a current disorder. See Table 1 for demographic information.

Recruitment

Permission to conduct this study was obtained from the university's institutional review board. The sample of mothers with BPD was recruited from among adolescents' mothers showing BPD symptoms who received brochures from outpatient treatment therapists and who viewed flyers that were hung up in the community. The comparison group participants were recruited on the basis of community events and flyers that were hung up in the community.

Procedures

During the home visit, trained research assistants obtained informed consent/assent and demographic information and used a screener for BPD symptoms. Then, during the laboratory visit, the mother and the adolescent completed questionnaires and a structured clinical interview. Mothers also reported on the adolescents' maltreatment history. With the mothers' specific consent requiring a separate signature on the consent form, records were requested from Child Protective Services regarding past family involvement for all participants.

Measures

Demographics. The Mt. Hope Family Center's (1995) demographic interview was administered to collect demographic data on the families (see Table 1).

Borderline personality disorder. To diagnose BPD status (yes/no), a preliminary screen and the Structured Clinical Interview for the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, personality disorders were administered to all mothers by a licensed clinical psychologist (First, Gibbon, & Spitzer, 1997). In the current sample, 57% of the mothers diagnosed with BPD were also diagnosed with another personality disorder. We created a variable for the number of additional diagnoses for use as a control. Mothers in the comparison group had no personality disorder diagnosis.

Borderline features. The borderline features portion of the Personality Assessment Inventory (PAI-BOR) was administered as

Table 1
Demographic Information

Variable	BPD group, $n = 28$ $M (SD)$	Comparison group, $n = 28$ $M (SD)$	$t(53)$
Family income (\$)	22,988 (12,769)	28,668 (16,081)	1.45
Adolescent age (years)	15.26 (1.13)	15.69 (1.26)	1.35
Adolescent BPD features	34.14 (12.76)	22.00 (9.87)	3.98*
Adolescents maltreated (%)	93 (2.6)	60 (4.9)	3.02**
Number of adults in the home	1.70 (0.67)	1.93 (0.77)	1.16
Number of children in the home	2.22 (1.37)	2.54 (1.67)	0.78
Minority ethnic status of adolescent	4%	11%	1.00
Female adolescents	50%	50%	0.02
Mother has GED/high school diploma	70%	100%	9.71**
Mother has partner	71%	67%	0.15

Note. BPD = borderline personality disorder; GED = General Educational Development.

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

a self-report measure to adolescents (Morey, 1991). The measure consists of 24 items rated on a 4-point Likert scale ranging from *false to not true at all* to *somewhat true* to *very true*. While the PAI-BOR cannot determine a BPD diagnosis, it has been used frequently to assess borderline features from adolescence to late adulthood (Morey, 1991). Cronbach's alpha indicated high internal consistency for adolescents' total borderline features ($\alpha = .90$) in the current sample. A score for each adolescent's total borderline features was calculated by summing all 24 items. Individual borderline features were not used.

Maltreatment. The Maltreatment Classification System (Barnett, Manly, & Cicchetti, 1993) was used to code maltreatment experienced by adolescents by combining information from the Maternal Child Maltreatment Interview and Child Protective Services records, as did prior research examining childhood maltreatment (Manly, 2005; Manly et al., 1994). Maltreatment was coded for adolescents in both the control and BPD groups. Adequate inter-rater reliability was obtained on 20% of the sample for sexual abuse, physical abuse, neglect, and emotional abuse, as well as chronicity, severity, and subtypes of abuse (intraclass correlation coefficient = 0.87–1.0; $\kappa = 0.88$ –1.0). In all, 76% of the overall current sample experienced maltreatment. Overall, 14% of the adolescents reported sexual abuse, 21% reported physical abuse, 42% reported neglect, and 64.3% reported emotional abuse.

Subtypes. *Sexual abuse* involves attempted or actual sexual contact between the child and the perpetrator, including grazing, touching, fondling, or penetration, or exposure to child pornography or adult sexual activity. *Physical abuse* involves intentional physical harm toward the child, ranging from bruises, welts, and burns to broken bones. *Neglect* refers to failing to meet the child's basic physical needs, including not providing adequate food, clothing, medical care, and shelter, or lack of educational and supervision needs provided for the child. Finally, *emotional abuse* includes extreme prevention of child's psychological needs, including extreme belittling, humiliation, exposure to domestic violence, threatening, and extreme anger and hostility. Overlapping presence/absence variables were created for each subtype.

Four hierarchical variables for the presence or absence of each subtype (physical abuse, sexual abuse, neglect, and emotional abuse) were calculated for each of the children. The children were also divided into maltreatment groups based on the following hierarchy congruent with the degree of violation of social norms (Manly et al., 1994): (a) *sexually abused group* (children with any report of sexual abuse, regardless of presence of other subtypes), (b) *physically abused group* (children with any report of physical abuse, without sexual abuse, and regardless of other subtypes), (c) *neglected group* (children with any report of neglect without any report of sexual abuse, or physical abuse, regardless of presence of emotional abuse), and (d) *emotionally abused group* (children with any report of emotional abuse without any report of physical abuse, sexual abuse, or neglect). In the current sample, 7.1% of the mothers were perpetrators of physical abuse, 32.1% were perpetrators of neglect, and 51.8% were perpetrators of emotional abuse. However, they were not the sole perpetrators for any of these subtypes. No mothers were perpetrators of sexual abuse.

Maltreatment dimensions. The total number of subtypes experienced was determined to make a *number of subtypes* variable. Each subtype was scored according to severity on a 0-to-3 rating scale within each subtype, ranging from *no maltreatment* to ex-

tremely severe maltreatment, and summed to create a *severity* variable (Manly et al., 1994). The total number of developmental periods (infancy, toddlerhood, preschool, school-age 6–12, and adolescence) in which maltreatment occurred was determined to create a *chronicity* variable.

Results

BPD Group Differences in Adolescent Maltreatment and Borderline Features

To test the first part of Hypothesis 1, that adolescent offspring of mothers with BPD would have experienced more overall maltreatment and subtypes (physical, sexual, neglect, emotional abuse) compared with adolescents whose mothers did not have BPD, we conducted five chi-square tests. As hypothesized, the adolescent offspring of mothers with BPD experienced more maltreatment overall compared with normative comparisons, $\chi^2(1, N = 56) = 8.11, p < .01$, more physical abuse, $\chi^2(1, 54) = 6.80, p < .01$, more neglect, $\chi^2(1, 54) = 7.30, p < .01$, and more emotional abuse, $\chi^2(1, 54) = 7.80, p < .01$, but not more sexual abuse, $\chi^2(1, 54) = 2.33, p > .05$, compared with normative comparisons. To test the second part of Hypothesis 1, that adolescents whose mothers had BPD would report more total borderline features than would normative comparisons, we conducted an analysis of covariance. We controlled for number of comorbid personality disorders present in the BPD group. As hypothesized, adolescents whose mothers had BPD reported higher total borderline features ($M = 34.14, SD = 12.76$) than did offspring of normative comparisons ($M = 22, SD = 9.87$), $F(1, 53) = 9.57, p < .05$.

Maltreatment Experience and Adolescent Borderline Features

For the first part of Hypothesis 2, that maltreated adolescents would differ from nonmaltreated adolescents in total borderline features, we conducted an analysis of variance. Contrary to expectations, there were no differences found between overall maltreatment and total borderline features, $F(1, 54) = 2.54, p > .05$. To test the second part of Hypothesis 2, that adolescents' total borderline features differed between maltreatment subtypes, we conducted Tukey's pairwise comparisons. We chose this post hoc test for the statistical power it generates and for our small sample size. There was a main effect of hierarchical subtypes of maltreatment on adolescents' borderline features, $F(4, 51) = 2.50, p < .05$. Tukey's pairwise comparisons analyses revealed significant differences in mean scores only between the sexually abused group ($M = 38.50, SD = 17.0$) and the nonmaltreated group ($M = 23.1, SD = 8.9; p < .05$).

Dimensions of Maltreatment and Adolescent Borderline Features

A linear regression was conducted to test Hypothesis 3 that maltreated severity, chronicity, and number of subtypes would be associated with adolescents' total borderline features. *Severity* of maltreatment explained 6%, $R^2 = 0.06, F(1, 54) = 4.00, p < .05$ ($B = 1.01, SE = 0.50$), and *number of subtypes* explained 7%,

$R^2 = 0.07$, $F(1, 54) = 4.53$, $p < .05$ ($B = 2.78$, $SE = 1.26$), of the variance in adolescents' total borderline features, but *chronicity* was not significantly related to the total borderline feature score, $R^2 = 0.07$, $F(1, 54) = .71$, $p > .05$ ($B = 0.58$, $SE = 0.11$).

Discussion

The present study found that adolescent offspring of mothers with BPD experienced more maltreatment (physical abuse, neglect, and emotional abuse, but not sexual abuse) and reported higher total borderline features than offspring whose mothers do not have the disorder. Maltreated adolescents in the sexually abused group had higher total borderline features than did non-maltreated adolescents. Both the severity of maltreatment and the number of subtypes experienced (but not chronicity of maltreatment) explained significant amounts of variance in adolescents' total borderline features.

Clearly, the experience of maltreatment makes it more likely that adolescent offspring of women with BPD will develop BPD themselves. Indeed, they also reported greater total borderline features scores before the age of 18 than did normative comparisons. This suggests that borderline features assessed as early as age 14 might be the target of preventive interventions. Although mothers with BPD are often the focus of interventions, their adolescent-aged offspring may need help, too. Bo et al. (2016) conducted a preliminary study of mentalization-based group therapy for adolescents with BPD and found that the majority of the group members (23 out of 25 patients) reported a significant decrease in borderline features after a 1-year intervention. Mentalization-based treatment focuses on helping an individual understand their own and others' mental state and, therefore, may be a promising intervention for adolescents with high borderline features. Future research should focus on empirically supported treatments with adolescents who have high BPD features, as early intervention may stunt the development of a full diagnosis of BPD in adulthood.

It is interesting that although adolescents whose mothers had BPD did not differ from normative comparisons on the experience of sexual abuse, sexual abuse was the only maltreatment group that differentiated maltreated from nonmaltreated adolescents on their total borderline features. This suggests that having a mother with BPD in and of itself is not sufficient to explain adolescents' experience of sexual abuse in the current sample, yet sexual abuse was related to adolescents' own borderline features and thus the likelihood that they will develop BPD. This particular finding differs from other studies that have shown a link between sexual abuse and BPD (Johnson, Cohen, Brown, Smailes, & Bernstein, 1999). It may be that in the current study, the low socioeconomic status of our participants in both groups did not yield any differences between experiences of sexual abuse, given that sexual abuse among individuals in a lower socioeconomic population is more prevalent than among individuals in a higher socioeconomic population (Zielinski, 2009).

Moreover, in terms of dimensions of maltreatment in youth, severity and how many different subtypes of maltreatment were experienced were associated with adolescents' own total borderline features. This is consistent with other findings that maltreatment in youth can have a significant effect on developmental psychopathology (Benjet, Borges, & Medina-Mora, 2010; Cicchetti, Rogosch, Hecht, Crick, & Hetzel, 2014; Widom et al.,

2009). This finding indicates that experiencing multiple subtypes of abuse that are severe may have a greater impact on the development of borderline features compared with how many developmental periods the maltreatment was perpetrated across time.

Together, findings that adolescents whose mothers have BPD are more likely to experience maltreatment and are also to report more borderline features than normative comparisons are vital in understanding that offspring may go on to develop the disorder, in part, perhaps, because they experience maltreatment. Administering the PAI-BOR (Morey, 1991) to parents as a part of a protocol for outpatient treatment settings for children would be an important diagnostic tool to help mental health practitioners screen for BPD. In addition, mental health practitioners working with adults who have BPD should screen whether parents with the disorder also have children in the home. Implementing these precautions while working with populations who have BPD would be important in monitoring and reporting maltreatment of the children and adolescents whose mothers have the disorder.

There were limitations to this study. There was no clinical comparison group, and although we controlled for a number of other personality disorders, findings of BPD group differences may be in part owing to comorbid disorders formerly listed on Axis I. Although we distinguished mothers as perpetrators of maltreatment, we did not detail all of the other perpetrators. This information would be important in identifying which family members, strangers, or family friends perpetrated the maltreatment, especially in the case of sexual abuse. Indeed, in our sample, some of the physical and emotional abuse and neglect were committed by the mother. Mothers did not perpetrate any of the sexual abuse, and there were no significant differences between groups for sexual abuse. We would expect that sexual abuse would be transmitted intergenerationally, mostly perpetrated by the mothers' male friends or family members (Cort et al., 2011). Given that many of the mothers in this study who had BPD were recruited from community clinics, treatment may have helped them avoid relationships with potential perpetrators of sexual abuse against their children. This may have different developmental implications for the adolescents' possibility of developing borderline features themselves: It may lessen the risk. However, this was an unexpected finding and needs replication, ideally in a larger sample. In addition, collecting information about adolescents' experience of maltreatment directly from the adolescent would have strengthened our study. The limited economic, racial, and ethnic diversity of the sample limits generalizability. Furthermore, limited statistical power because of the modest sample size in the present study ($n = 56$) may have played a role in being able to detect significant effects. Finally, a longitudinal analysis is needed to better examine the relationship between maternal BPD, adolescent maltreatment, and adolescent BPD.

Given that BPD is prevalent in both men and women equally in community samples (Grant et al., 2008; Sansone & Wiederman, 2014), although extremely difficult to do, future studies might examine maltreatment in offspring of fathers who have the disorder. In addition, given the challenging nature of treating BPD (Diamond et al., 2013), it is imperative to target specific developmental pathways along with maltreatment that may later lead to a full diagnosis in adulthood. Elucidating the variability and intensity of these characteristics in adolescents with high BPD features may shed light on preventive interventions to improve emotion

regulation, reduce self-harm, facilitate healthy relationships, and develop a stable and coherent sense of self.

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