

Effect of Maternal Autonomy and Relatedness and Borderline Personality Disorder on Adolescent Symptomatology

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Several theories propose a relationship between deficits in autonomy and relatedness and the development of borderline personality disorder (BPD). Empirical work supports relationships between maternal BPD and adolescent symptomatology, as well as between maternal autonomy and relatedness and adolescent symptomatology. However, no study has examined how individuals with BPD differ from normative comparisons on autonomy and relatedness, or whether mothers' BPD mediates the relationship between their autonomy and relatedness and their adolescents' symptomatology. We sampled 28 mothers with BPD and their adolescents aged 14–17 years, as well as 28 normative comparisons matched on demographic variables. We assessed BPD as a categorical diagnosis and along a continuum of self-reported borderline features. In a videotaped problem-solving interaction, controlling for current major depressive disorder, mothers with BPD were less likely to promote and more likely to inhibit relatedness, and they were marginally more likely to inhibit but equally likely to promote autonomy with their adolescents. Mothers' total borderline features mediated the relationship between mothers' *promotion* of autonomy plus relatedness and adolescent internalizing and externalizing symptoms (anxious depression, withdrawn depression, somatic problems, rule breaking, and aggression) and adolescent borderline features (affective instability and self-harm). Mothers' total borderline features also mediated the relationship between mothers' *inhibition* of autonomy plus relatedness and adolescent internalizing and externalizing symptoms (anxious depression, withdrawn depression, somatic problems, and aggression but not rule breaking) and adolescent borderline features (affective instability and self-harm). We discuss findings in terms of light shed on BPD and the effect of maternal BPD on adolescent development.

Keywords: Borderline personality disorder, autonomy and relatedness, mothers, adolescents

The desire for both independence and close relationships, autonomy and relatedness, is an important issue across the life span (Allen, Hauser, Bell, & O'Connor, 1994; Blatt, 2008; Freud, 1930). Autonomy is defined as self-governance (Turner, Irwin, Tschann, & Millstein, 1993) and includes the ability to use reasoning when arguing and to act independently with confidence (Cooper, Grotevant, & Condon, 1983). Relatedness is defined as an emotionally close tie that is validating and engaging and includes curiosity about the needs and opinions of others (Grotevant & Cooper, 1985). Although autonomy is positively correlated with relatedness, each has its own main effect and may be promoted or inhibited in relationship with others (Allen, Hauser, Bell, McElhaney, & Tate, 2003; Allen, Hauser, Bell, et al., 1994; Blatt & Luyten, 2009; Grotevant & Cooper, 1985; Turner et al., 1993).

Borderline personality disorder (BPD) is thought to develop from and exemplify difficulties with autonomy and relatedness, with symptoms that include difficulties with autonomy (e.g., identity disturbance and a fear of abandonment) and difficulties with

relatedness (e.g., intense and volatile relationships and angry outbursts) (Ryan, Deci, Grolnick, & La Guardia, 2006). Not only may difficulties with autonomy and relatedness contribute to the development of BPD, but mothers' BPD may in turn be associated with adolescents' symptomatology. The current study addressed two questions: Do mothers with BPD differ from normative comparisons on autonomy and relatedness? Does maternal BPD mediate the relationship between mothers' difficulties with autonomy and relatedness and their adolescents' symptomatology? These are important questions because of the potential need to address difficulties with maternal autonomy and relatedness and BPD in preventive interventions for adolescents.

Three theories specifically address the relationship between autonomy and relatedness and the development of psychopathology. First, attachment theory explains the caregiver-infant relationship in evolutionary terms as providing a secure base (relatedness) from which the infant is free to explore (autonomy) and to return to as needed (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969/1982, 1988). Furthermore, caregiver sensitivity is key to a secure attachment (Ainsworth et al., 1978; Bowlby, 1969/1982), and its definition has been extended to include support for autonomy (Bretherton, 1987). Moreover, Bowlby was quoted as having coined the term *autonomous-relatedness* to describe attachment in adolescence (Murphey, Silber, Coelho, Hamburg, & Greenberg, 1963). When an infant lacks a secure attachment to a caregiver, psychopathology is thought to be more likely to develop (Bowlby,

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1980), and there is empirical evidence supporting the link between attachment and BPD. Disorganized attachment in infancy is associated prospectively with BPD symptoms at age 28 years (Carlson, Egeland, & Sroufe, 2009), and adults with BPD are more likely to be classified as unresolved in their attachment with respect to the childhood experience of loss and trauma (Macfie, Swan, Fitzpatrick, Watkins, & Rivas, 2014; Patrick, Hobson, Castle, Howard, & Maughan, 1994). However, the relationship between autonomy and relatedness and BPD in attachment theory is more implicit than explicit.

Second, psychodynamic structural developmental theory proposes that development evolves along two dimensions: self-definition (autonomy) and interpersonal relatedness (Blatt & Luyten, 2009). Mature self-definition is thought to depend on mature interpersonal relationships and vice versa. Psychopathology is thought to develop when there is oppositional tension between them instead (Guisinger & Blatt, 1994).

Third, self-determination theory clarifies how this tension might make the development of BPD more likely. The theory identifies three basic human needs—autonomy, relatedness, and competence (Deci & Ryan, 1980)—and proposes that frustration of these needs may lead to psychopathology (Vansteenkiste & Ryan, 2013). For BPD, Ryan and colleagues (Ryan, 2005; Ryan et al., 2006) refer to object relations theory, specifically the separation-individuation phase of infant/toddler development (Mahler, Pine, & Bergman, 1975). They suggest that if the caregiver feels threatened by the child's seeking autonomy and withdraws nurturance in response, the child is faced with a choice: he or she can insist on autonomy but without caregiver support or settle for a relatedness that lacks caregiver empathy for the child's needs. Instead of working together, autonomy and relatedness are thus in opposition to each other. The child's development of autonomy and relatedness is then undermined, making the development of BPD more likely (Ryan, 2005; Ryan et al., 2006). However, there has been no empirical test of differences in autonomy and relatedness in individuals with BPD. The current study addressed this gap.

There is empirical evidence for the effect of caregiver autonomy and relatedness on adolescent internalizing and externalizing symptoms. Fathers' inhibition of autonomy with adolescents predicted externalizing symptoms (hostility toward peers) in early adulthood (Allen, Hauser, O'Connor, & Bell, 2002), and parental inhibition of autonomy and relatedness assessed as high expressed emotion (overinvolvement, criticism, and hostility) nullified the effects of an otherwise successful intervention for adolescent social anxiety (Garcia-Lopez, Muela, Espinosa-Fernandez, & Diaz-Castela, 2009). Moreover, both mothers' and fathers' displays of autonomy and relatedness with their adolescents at age 14 years were inversely related to adolescents' internalizing symptoms (depressed affect) at age 16 years and externalizing symptoms at age 17 years (Allen, Hauser, Eichholt, Bell, & O'Connor, 1994).

There is also empirical support for a relationship between maternal BPD and adolescent internalizing and externalizing symptoms. Offspring of women with BPD displayed more internalizing and externalizing symptoms at ages 4–18 years (Weiss et al., 1996) and ages 11–18 years (Barnow, Spitzer, Grabe, Kessler, & Freyberger, 2006). However, the relationship between maternal autonomy and relatedness, maternal BPD, and adolescent symptomatology has not been assessed. Given the theorized etiological relationship between autonomy and relatedness and BPD, as well

as the empirical relationship between both and adolescent symptomatology, we expected that maternal BPD would mediate the relationship between maternal autonomy and relatedness and adolescent internalizing and externalizing symptoms. In addition, we extended adolescent symptomatology to include the adolescents' own borderline features, based on the high risk of BPD in offspring due to the higher rate of BPD found in first-degree relatives of individuals who have the disorder (White, Gunderson, Zanarini, & Hudson, 2003).

Current Study

We examined BPD, autonomy and relatedness, and internalizing and externalizing symptoms in a sample of mothers with BPD, their adolescent offspring, and normative comparisons. Because major depressive disorder (MDD) is the most common comorbid disorder with BPD (Zanarini et al., 1998a), and there is a large literature on the deleterious effects of maternal MDD on child and adolescent development (Downey & Coyne, 1990), we controlled for current MDD in examining group differences. We assessed BPD as a categorical diagnosis and along a self-reported continuum of borderline features. We hypothesized that (a) mothers with BPD would promote less and inhibit more autonomy and relatedness than would normative comparisons and (b) mothers' borderline features would mediate between mothers' promotion and inhibition of autonomy and relatedness and adolescents' internalizing and externalizing symptoms and borderline features.

Method

Participants

A low-socioeconomic status sample, $N = 56$, consisted of 28 adolescents and their biological mothers who had BPD and 28 matched normative comparisons. Their mean age was 15 years 5 months ($SD = 1$ year 2 months), and 50% were female. Seven percent were from a minority ethnic background, and 4% were Hispanic, reflecting proportions in the local population. See Table 1 for demographic information.

The sample was drawn from rural and urban areas in a five-county region in the Southeast United States. Mothers with BPD were recruited via presentations on treatment for BPD to clinicians at hospitals, community clinics, and independent practices. Clinicians then gave brochures explaining the study to potential participants asking them to call for more information. Mothers with BPD were also recruited through fliers posted in the community. Normative comparison mothers were recruited from the community via Boys and Girls Clubs, parks, and sporting events. Comparison mothers were also recruited through flyers posted in the community. Gift certificates were given to both mothers and adolescents to compensate for their time.

Procedures

Following an initial phone call, two research assistants visited the mother's home or other meeting place chosen by the mother. They requested the mothers' informed consent, adolescents' informed assent, and demographic information. In addition, mothers

Table 1
Tests of Demographic Group Differences

Variables	Whole sample (<i>N</i> = 56) <i>M</i> (<i>SD</i>)	BPD (<i>n</i> = 28) <i>M</i> (<i>SD</i>)	Comparisons (<i>n</i> = 28) <i>M</i> (<i>SD</i>)	<i>t</i>
Continuous				
Adolescent age (years)	15.41 (1.19)	15.22 (1.13)	15.61 (1.23)	1.25
Child verbal ability (PPVT)	107.52 (9.96)	107.57 (9.12)	107.46 (10.91)	0.04
Family yearly income (\$)	26,876 (17,119)	22,615 (12,250)	31,138 (20,230)	1.91 [†]
Adults in home	1.80 (0.72)	1.68 (0.67)	1.93 (0.77)	1.30
Children in home	2.36 (1.53)	2.18 (1.36)	2.54 (1.69)	0.87
Mothers' Hollingshead (SES)	36.05 (15.29)	33.80 (15.37)	38.37 (15.14)	1.11
	%	%	%	χ^2
Categorical				
Child gender (girls)	50	50	50	0.00
Child Hispanic	4	4	4	0.00
Child minority ethnic background	7	4	11	1.08
Mother single	30	32	29	0.08

Note. BPD = borderline personality disorder; PPVT = Peabody Picture Vocabulary Test; SES = socioeconomic status.

[†] $p < .10$.

completed a preliminary self-report screen for a possible BPD diagnosis.

Participants then came to a university laboratory as part of a broader study exploring the impact of maternal BPD on adolescent development. The mother was given structured clinical interviews for mental health disorders. Mothers and adolescents each separately identified problems they argued about. They then participated in a videotaped discussion of three of these problems. Teachers completed questionnaires on the adolescents' behavior at school.

Measures

Potential control variables. Demographic information was assessed with a maternal interview (Mt. Hope Family Center, 1995). The Peabody Picture Vocabulary Test (PPVT; Dunn & Dunn, 1997) was used to assess adolescents' verbal ability. There was a marginally significant group difference on total family income such that comparisons had a higher income than did the BPD group. See Table 1. We controlled for total income in analyses of group differences.

BPD. The Structured Clinical Interview for Axis II Disorders (First, Gibbon, Spitzer, Williams, & Benjamin, 1997) was used to assess mothers for a diagnosis of BPD.

MDD. The Structured Clinical Interview for Axis I Disorders (First, Gibbon, Spitzer, & Williams, 1996) was used to assess current MDD in mothers as a control variable. MDD and BPD were significantly correlated with each other, $r = .31, p < .05$.

Borderline features. The Personality Assessment Inventory (PAI; Morey, 1991) was employed to assess borderline features in both mothers and adolescents. The borderline features scale is made up of 24 items, including four subscales of 6 items each: affective instability, identity disturbance, negative relationships, and self-harm. The sum of the four subscales comprises a total borderline features score. Items are endorsed on a 4-point Likert scale from 0 (*false, not at all true*) to 4 (*very true*).

The PAI reflects the multifaceted nature of BPD revealed in factor-analytic studies and has shown high internal consistency and high test-retest correlations (Morey, 1991). In the current sample, mothers with BPD reported significantly more borderline features than did comparisons: affective instability, $t(41.13) = 10.62, p < .001$, BPD $M = 11.50, SD = 3.91$, comparison $M = 2.61, SD = 2.08, r = .81, p < .001$; identity problems, $t(43.86) = 8.47, p < .001$, BPD $M = 10.54, SD = 4.30$, comparison $M = 2.54, SD = 2.55, r = .74, p < .001$; negative relationships, $t(54) = 7.58, p < .001$, BPD $M = 11.36, SD = 3.39$, comparison $M = 4.18, SD = 3.69, r = .70, p < .001$; self-harm, $t(39.03) = 5.39, p < .001$, BPD $M = 6.61, SD = 4.51$, comparison $M = 1.50, SD = 2.19, r = .57, p < .01$; and total borderline features, $t(46.21) = 9.73, p < .0001$, BPD $M = 40.00, SD = 13.32$, comparison $M = 10.82, SD = 8.61, r = .80, p < .001$. The BPD group average was above the cutoff of 38 for a clinically significant score (Trull, 2001). Internal consistency, assessed with Cronbach's alpha, was high for mothers' total borderline features ($\alpha = .96$), affective instability ($\alpha = .91$), identity problems ($\alpha = .85$), negative relationships ($\alpha = .85$), and self-harm ($\alpha = .86$). Internal consistency was moderate to high for adolescents' total borderline features ($\alpha = .90$), affective instability ($\alpha = .83$), identity problems ($\alpha = .67$), negative relationships ($\alpha = .69$), and self-harm ($\alpha = .80$).

Adolescent internalizing and externalizing symptoms. The Teacher Report Form for Ages 6–18 (TRF; Achenbach & Rescorla, 2001) is a 113-item measure used to assess internalizing and externalizing symptoms. Each item is rated on a Likert scale from 0 (*not true*) to 2 (*very true or often true*). Internalizing T scores were summed from the subscales of anxious depression, withdrawn depression, and somatic problems. Externalizing T scores were summed from the subscales of rule breaking and aggression. Because of missing teacher data for five children, means were imputed based on means for each group by gender in the sample as a whole. In a community sample, the TRF has shown

high test-retest correlations for both the internalizing ($r = .86$) and externalizing ($r = .89$) scales (Achenbach & Rescorla, 2001). In the current sample, internal consistency was high for both internalizing ($\alpha = .90$) and externalizing ($\alpha = .94$) symptoms.

Autonomy and Relatedness

Problem-solving inventory. The autonomy and relatedness coding system (described below) requires a task that reveals differences of opinion among family members to elicit topics for discussion in the filmed interaction. Two different tasks have been used by Allen and colleagues (Allen, Hauser, Eickholt, et al., 1994; McElhaney & Allen, 2001) and a third task by others (Pavlidis & McCauley, 2001; Van Ryzin & Leve, 2012). In the current sample, mothers and adolescents completed a form based on the Relationship Problem Inventory (Knox, 1971) for marital couples, which was adapted for use with mother-adolescent dyads. Participants were given a list of common problems that cause conflict between parents and adolescents (including choice of friends, clothes, grades, and communication). Participants were then asked to identify conflicts that applied to them and star the issue that causes the most conflict. A research assistant selected three topics that were rated as salient: the first taken from the mother's form, the second from the adolescent's form, and the third a problem that both mother and adolescent identified. Participants were asked to "try and come up with a solution" and were left for a 5-min period for each problem. Sessions were videotaped.

Coding. The *Autonomy and Relatedness Coding System Manual, Version 2.14* (Allen et al., 2003) was used to code the mother-adolescent problem discussion task. Support for and inhibition of autonomy and relatedness were coded for mothers. Each discussion was transcribed verbatim (including length of silences and notable gestures) by research assistants who were ignorant of the BPD status of the participants. Coders, also ignorant of the participants' status, then reviewed the transcript and watched the videotaped interaction, looking for 10 specific dimensions of behavior. The three 5-min problem discussions were coded separately and their scores averaged. Ten subscales were assessed: reasons (expressing justification for disagreements), confidence (certainty in stating a position), queries (attends to the other person's statements), validates (confirms another's position), engages (agrees with another's position), recants (changes a position without appearing to have been persuaded the position is wrong, thus ending the discussion), blurs (overpersonalizes a disagreement), pressures (insists another person agree other than by making rational arguments), distracts (rudely interrupts/ignores), and is hostile (expresses animosity).

These subscales were summed into four larger first-order composites: promotion of autonomy (reasons and confidence), promotion of relatedness (queries, validates, and engages), inhibition of autonomy (recants, blurs, and pressures) and inhibition of relatedness (distracts and is hostile). Allen et al. had first proposed three composites a priori, which were supported by factor analyses: they had combined promotion of autonomy and relatedness and kept inhibition of autonomy and inhibition of relatedness separate (Allen, Hauser, Bell, et al., 1994). However, they then found that separating promotion of autonomy from the promotion of relatedness helpful, making four composites instead (McElhaney & Allen, 2001). In the current sample, the correlation was $r = .26$, $p =$

$.05$ between mothers' promotion of autonomy and promotion of relatedness and $r = .68$, $p < .001$ between mothers' inhibition of autonomy and inhibition of relatedness. We therefore summed the four first-order composites into two overall second-order composites: (a) promotion of autonomy and relatedness and (b) inhibition of autonomy and relatedness. On the other hand, the promotion and inhibition of mothers' autonomy were not significantly correlated, $r = .21$, $p > .10$, and the promotion and inhibition of mothers' relatedness were significantly negatively correlated, $r = -.28$, $p < .05$.

Two coders were trained to reliability by Dr. Joseph Allen's research team at the University of Virginia. The two coders then established interrater reliability on 23% of the current sample. Both coders were ignorant of BPD status of the dyads. Their interrater reliability was assessed for each of the 10 scales with intraclass correlation coefficients, ranging from $r_i = .73$ to $r_i = .91$. At the level of the first-order composites, for promotion of autonomy, $r_i = .92$; for promotion of relatedness, $r_i = .89$; for inhibition of autonomy, $r_i = .93$; and for inhibition of relatedness, $r_i = .88$.

Results

Maternal Autonomy and Relatedness

To test group differences on maternal autonomy and relatedness, we conducted multivariate analyses of covariance (MANCOVAs) with mothers' BPD group status (yes/no) as the independent variable and family total income and current MDD as covariates. We first tested differences for the four first-order autonomy and relatedness composites, followed by tests of component scales. We examined each group of dependent variables for multicollinearity but found only the recommended moderate ($r < .70$) correlations (Tabachnick & Fidell, 2007).

We conducted a MANCOVA with mothers' four first-order autonomy and relatedness composites as dependent variables: promotion of autonomy, promotion of relatedness, inhibition of autonomy, and inhibition of relatedness. There was, as hypothesized, a significant main effect for BPD group status, Wilks's approximate $F(4, 49) = 4.61$, $p < .01$, $\eta^2 = .27$. In univariate tests, three of four analyses were significant. Mothers with BPD were less likely to promote relatedness, more likely to inhibit autonomy, and more likely to inhibit relatedness than were normative comparisons. However, there was no significant difference for mothers' promotion of autonomy. Current MDD entered as a covariate had a significant overall effect, Wilks's approximate $F(4, 50) = 2.97$, $p < .05$, $\eta^2 = .19$, and was associated with mothers being marginally more likely to inhibit their adolescents' autonomy. If current MDD had been omitted as a covariate, significance tests remained the same, except that the promotion of relatedness would have been marginally significant.

We then tested differences on the component scales for the significant dependent variables above. For mothers' promotion of relatedness, there was an overall significant effect for BPD group status, Wilks's approximate $F(3, 50) = 3.86$, $p < .05$, $\eta^2 = .19$. In univariate analyses, two of three were significant or marginally significant. Mothers with BPD were less likely to engage and agree with their adolescents, marginally less likely to validate their

adolescents' position, but equally likely to query their adolescents' statements compared with normative comparisons.

For mothers' inhibition of autonomy, there was again an overall significant effect for BPD group status, Wilks's approximate $F(3, 50) = 5.14, p < .01, \eta^2 = .24$. In univariate tests, two of three were significant. Mothers with BPD were more likely to overpersonalize (blur) a disagreement with their teens and were more likely to pressure them to agree without using a rational argument, but they were equally likely to recant (change their position without being convinced they are wrong).

Finally, for mothers' inhibition of relatedness, there was an overall marginally significant main effect for BPD group status, Wilks's approximate $F(2, 51) = 3.02, p = .07, \eta^2 = .10$. In univariate tests, one of two was significant. Mothers with BPD were more likely to be hostile with their teens than were normative comparisons but were not more likely to distract them by interrupting or ignoring them. See Table 2. For current MDD, there was a significant overall effect only for mothers' inhibition of relatedness such that it was associated with mothers being more likely to distract their adolescents, but they were not more hostile than were normative comparisons. Interestingly, this is the opposite pattern to that found for BPD, which was associated with mothers being hostile but not distracting. If current MDD had been omitted as a covariate, BPD in the test of promotion of relatedness would be marginally significant rather than significant, and validates would be nonsignificant rather than marginally significant.

Mediational Models

We used two second-order composites, (a) mothers' promotion of autonomy and relatedness and (b) mothers' inhibition of autonomy relatedness, to test the mediational models. We used these second-order composites because components of each were significantly correlated with each other. (See Method section for correlation coefficients.)

Table 2

Group Differences on Mothers' Autonomy and Relatedness Variables Controlling for Family Income and Current Major Depressive Disorder

Variable	BPD (<i>n</i> = 28), <i>M</i> (<i>SD</i>)	Comparisons (<i>n</i> = 28), <i>M</i> (<i>SD</i>)	<i>F</i> (1, 52)	η^2
Promotion of autonomy	14.98 (3.17)	16.07 (3.89)	0.68	.01
Promotion of relatedness	15.14 (2.08)	17.05 (4.01)	4.81*	.09
Inhibition of autonomy	5.96 (3.14)	3.95 (2.99)	13.64**	.21
Inhibition of relatedness	4.14 (2.56)	2.86 (2.02)	4.02*	.07
Promotion of relatedness				
Queries	5.70 (1.30)	5.88 (2.21)	0.01	.00
Validates	2.88 (1.46)	3.59 (1.78)	2.97†	.06
Engages	6.57 (1.02)	7.59 (1.43)	11.38**	.18
Inhibition of autonomy				
Recants	0.48 (0.93)	0.29 (0.63)	2.14	.04
Blurs	3.13 (1.72)	2.09 (1.68)	11.56**	.18
Pressures	2.33 (1.87)	1.57 (1.54)	5.26*	.09
Inhibition of relatedness				
Distracts	2.68 (1.34)	2.23 (1.37)	1.15	.02
Hostile	1.46 (1.57)	0.63 (1.09)	5.63*	.10

Note. BPD = borderline personality disorder.

† $p < .10$. * $p \leq .05$. ** $p \leq .01$.

Preacher and Hayes's (2004) bootstrapping method to test mediational models has more power than traditional methods and is thus useful with small samples, does not assume normal distributions, tests the significance of indirect effects, and also provides confidence intervals. Preacher and Hayes's macro was used to bootstrap 5,000 resamples from the current data set (Preacher & Hayes, 2004).

Maternal promotion of autonomy and relatedness. There were significant effects for the mediating role of mothers' total borderline features between mothers' promotion of autonomy and relatedness and (a) adolescents' overall internalizing composite and for each subscale (anxious depression, withdrawn depression, and somatic problems), (b) adolescents' overall externalizing composite and for each subscale (rule breaking and aggression), and (c) adolescents' total borderline features and two subscales (affective instability and self-harm) but not for two other subscales (identity disturbance and negative relationships). In all, 10 of 12 mediations were significant. See Table 3 for mediational models for maternal promotion of autonomy and relatedness.

Maternal inhibition of autonomy and relatedness. There were similar significant effects for the mediating role of mothers' total borderline features between mothers' inhibition of autonomy and relatedness and (a) adolescents' overall internalizing composite and for each subscale (anxious depression, withdrawn depression, and somatic problems), (b) adolescents' overall externalizing composite and for aggression but not the rule-breaking subscale, and (c) adolescents' total borderline features and two subscales (affective instability and self-harm) but not for two other subscales (identity disturbance and negative relationships). Overall, 9 of 12 mediations were significant. See Table 3 for mediational models for maternal inhibition of autonomy and relatedness (values are in parentheses).

Discussion

Two clear findings emerge from the current study. The first is an expanded understanding of how difficulties with support for autonomy and relatedness affect the behavior of mothers with BPD with their adolescents. Mothers with BPD displayed a reduced capacity in their ability to promote relatedness by demonstrating deficits in validating their teens' opinions and engaging/agreeing with them (but did not differ on queries). Mothers with BPD also were more likely to inhibit relatedness with their adolescents by being hostile (but not by recanting) and to inhibit autonomy by overpersonalizing disagreements and pressuring their teens to agree without any rational argument (but not by distracting). However, there were no significant differences in the promotion of autonomy (giving reasons for disagreement and showing confidence in their positions) for mothers with BPD.

The relative lack of validation and engagement found in this study for mothers with BPD with their teens may increase the risk of their adolescents developing BPD themselves. Marsha Linehan theorizes that a lack of validation in childhood is an etiological factor (in interaction with an emotionally vulnerable temperament) in the development of BPD (Linehan, 1993). Indeed, adults with BPD are more likely to retrospectively report that their parents withdrew emotionally from them during childhood and denied the validity of their thoughts and feelings than are those with other

Table 3

Indirect Effects of Maternal Promotion (Inhibition) of Autonomy and Relatedness on Adolescents' Symptomatology Through Maternal Borderline Features (N = 56)

Adolescent dependent variable	Effect in sample data	Estimated effect in population using bootstrapping	Bias	SE	Confidence interval
Internalizing	-0.21 (0.31)	-0.20 (0.32)	0.00 (0.01)	0.10 (0.14)	-0.46 to -0.05* (0.11 to 0.66*)
Anxious depression	-0.15 (0.23)	-0.15 (0.23)	0.00 (0.00)	0.07 (0.09)	-0.30 to -0.04* (0.08 to 0.45*)
Withdrawn depression	-0.11 (0.15)	-0.11 (0.16)	0.00 (0.00)	0.07 (0.08)	-0.31 to -0.06* (0.03 to 0.37*)
Somatic problems	-0.13 (0.23)	-0.13 (0.24)	0.00 (0.01)	0.67 (0.11)	-0.31 to -0.03* (0.07 to 0.50*)
Externalizing	-0.15 (0.21)	-0.15 (0.21)	0.00 (0.00)	0.86 (0.12)	-0.40 to -0.03* (0.02 to 0.50*)
Rule breaking	-0.08 (0.11)	-0.07 (0.11)	0.00 (0.00)	0.05 (0.08)	-0.23 to -0.00* (-0.01 to 0.30)
Aggression	-0.12 (0.16)	-0.12 (0.17)	-0.00 (0.00)	0.07 (0.09)	-0.31 to -0.03* (0.02 to 0.39*)
Total borderline features	-0.29 (0.39)	-0.29 (0.41)	-0.00 (0.01)	0.14 (0.16)	-0.64 to -0.07* (0.14 to 0.80*)
Affective instability	-0.15 (0.19)	-0.15 (0.20)	0.00 (0.00)	0.06 (0.06)	-0.26 to -0.03* (0.09 to 0.35*)
Identity disturbance	-0.05 (0.06)	-0.04 (0.07)	0.00 (0.00)	0.04 (0.05)	-0.14 to 0.01 (-0.01 to 0.18)
Negative relationships	-0.04 (0.05)	-0.04 (-0.05)	0.00 (0.00)	0.03 (0.04)	-0.13 to 0.00 (-0.01 to 0.14)
Self-harm	-0.05 (0.09)	-0.05 (0.09)	-0.00 (0.00)	0.04 (0.05)	-0.16 to -0.00* (0.02 to 0.20*)

* $p < .05$ (significant for a 95% confidence interval).

disorders (Zanarini et al., 2000; Zanarini, Gunderson, Marino, Schwartz, & Frankenburg, 1989; Zanarini et al., 1997).

By overpersonalizing disagreements with their teens and pressuring teens to agree with them other than by rational argument, mothers with BPD were more likely to put subservience and obedience ahead of encouraging their teens' independence and ability to think for themselves. This may reflect fear of abandonment and the need to keep their teens close to them by mothers with BPD. However, this closeness was marred by significantly greater hostility than in the normative sample, which served to inhibit relatedness. Both independence and closeness were thus actively discouraged by mothers with BPD when interacting with their teens, reflecting their own difficulties with autonomy and relatedness and perhaps also making it more likely that the teens, too, would develop BPD.

There were, contrary to hypothesis, several autonomy and relatedness scales on which mothers with BPD did not show deficits compared with normative mothers. Mothers with BPD were equally likely to query their adolescents, provide reasons for their disagreements, show confidence in their positions, recant their original positions, or rudely interrupt or ignore (distract). This suggests that mothers with BPD have normative skills in some areas of autonomy and relatedness.

The second clear finding to emerge is a better understanding of how maternal BPD (assessed as self-reported borderline features) may affect adolescents' symptomatology. We knew that offspring of mothers with BPD display more externalizing and internalizing symptoms (Barnow et al., 2006; Weiss et al., 1996) but knew nothing of the process. Mothers' borderline features mediated the relationship between mothers' autonomy and relatedness and their adolescents' internalizing and externalizing symptoms, as well as their adolescents' borderline features. Although longitudinal study is necessary to support a causal hypothesis, findings suggest that autonomy and relatedness and BPD are linked but separate and that autonomy and relatedness underlie mothers' borderline features and their effect on adolescents' symptomatology. This is directly in line with psychodynamic structural and self-determination theory on how difficulties with autonomy and relatedness may lead to BPD (Guisinger & Blatt, 1994; Ryan, 2005; Ryan et al., 2006).

Mothers' borderline features mediated between their promotion of autonomy and relatedness on adolescent internalizing (anxious depression, withdrawn depression, and somatic problems) and externalizing (rule breaking and aggression) symptoms. Mothers' borderline features also mediated between their inhibition of autonomy and relatedness and adolescent internalizing and all but one (rule breaking) externalizing symptom. This represents a significant disruption in adolescent self-regulation. Moreover, the mediational effect of mothers' borderline features between their promotion and inhibition of autonomy and relatedness and adolescent borderline features (affective instability and self-harm but not negative relationships or identity disturbance) also emphasizes the adolescents' difficulty with self-regulation.

A construct that may help explain the relationship between autonomy and relatedness and BPD is parent-child role reversal, also termed *role confusion* or *boundary dissolution* (Macfie, Fitzpatrick, Rivas, & Cox, 2008; Macfie, Houts, McElwain, & Cox, 2005; Macfie, Brumariu, & Lyons-Ruth, in press; Macfie, Houts, Pressel, & Cox, 2008; Sroufe, Jacobvitz, Mangelsdorf, DeAngelo, & Ward, 1985; Vulliez-Coady, Obsuth, Torreiro-Casal, Ellertsdotir, & Lyons-Ruth, 2013). Role reversal may underlie the difficulties that mothers with BPD have in being able to support the development of autonomy and relatedness in their teens because of the mothers' own unmet past and current needs for care themselves. This may lead to their looking to their children to meet their needs rather than being able fully to take the role of parent. Indeed, more role reversal was found in narrative representations of young children of mothers with BPD than in those of normative comparisons (Macfie & Swan, 2009). Furthermore, adults with BPD retrospectively reported more childhood role reversal than did comparisons (Zanarini et al., 1997), and role reversal at age 42 months was prospectively associated with BPD symptoms at age 28 years (Carlson et al., 2009). It would be of great interest to examine the relationship between role reversal, BPD, and maternal and adolescent autonomy and relatedness.

Context, too, may moderate the relationship between mothers' difficulties with autonomy and relatedness with their teens, BPD, and their teens' symptomatology, for example, in the form of perceived stress. Maternal and familial stress is associated with a decreased ability to parent (Crnic, Gaze, & Hoffman, 2005) and

with increases in adolescent psychopathology (Roberts, Roberts, & Chan, 2009; Willemen, Schuengel, & Koot, 2009). Without adequate social support to counter perceived stress, mothers may be unable to support their teens' autonomy and relatedness adequately. Furthermore, in the larger context, cultural differences are also known to affect autonomy and relatedness (Dennis, Talih, Cole, Zahn-Waxler, & Mizuta, 2007; Keller & Otto, 2009; Rasmussen, 2009). These, too, may moderate expression of autonomy and relatedness and may interact differentially with BPD and adolescent development.

Strengths of the study include observational measures of autonomy and relatedness reliably coded from videotaped interactions. The observational design minimizes participants' motivation to "fake good" by providing a naturalistic illusion of privacy: the examiner leaves the room and films the problem discussion tasks through a one-way mirror. Moreover, observational measures allow for assessment of behaviors of which participants may have limited awareness.

We also obtained teacher reports of adolescents' internalizing and externalizing symptoms rather than depending on maternal reports. Teachers in general have more experience than do parents with the normative range in behavior of children in a particular developmental period. Moreover, parent report measures when the parent has an illness as severe as BPD may not be as accurate. Furthermore, the inclusion of self-reported borderline features along a continuum in addition to a categorical diagnosis of BPD gave us more power statistically to examine relationships with autonomy and relatedness and adolescent symptomatology. In addition, the BPD group was recruited from both clinical and community samples, providing more generalizability than if solely from one or the other.

Weaknesses include a small sample size, which may have limited the ability to detect the significance of small effects. However, the sample size was large relative to other studies of maternal BPD with offspring sampled in the same developmental period (Crandell, Patrick, & Hobson, 2003; Hobson, Patrick, Crandell, García-Pérez, & Lee, 2005). Also, although current MDD was included as a covariate in group difference analyses, other disorders also found to be comorbid with BPD (Zanarini et al., 1998a, 1998b) were not included. Furthermore, although the percentage of participants from minority ethnic backgrounds reflects the area from which they were sampled, the low percentage limits generalizability to minority populations. Finally, longitudinal study is needed to examine the development of autonomy and relatedness, the relationship with adolescent internalizing and externalizing symptoms and borderline features, and the development of BPD. For example, we assumed that mothers' autonomy and relatedness assessed in the context of an interaction with their adolescents was representative of their autonomy and relatedness in general, that it predated their relationship with their adolescents, and thus that it potentiated their BPD/borderline features. However, longitudinal study is needed to confirm whether or not this is the case.

Conclusion

From a developmental psychopathology perspective (Cicchetti, 1984; Sroufe & Rutter, 1984), findings inform both normative and atypical development: difficulties with autonomy and relatedness are related to BPD, and adolescents need maternal support for

autonomy and relatedness to develop healthy self-regulation. Also from a developmental psychopathology perspective, study of groups at high risk of developing BPD, including offspring of a mother with BPD, may inform precursors to BPD (Lenzenweger & Cicchetti, 2005; Macfie, 2009). A mother with BPD who has difficulty supporting her teen's autonomy and relatedness may push him or her away by being hostile, invalidating, and unable to engage, by overpersonalizing disagreements, and by pressuring the adolescent to agree with her without rational argument. For the mother with BPD, difficulty being independent and difficulty being in close relationships may contribute to the frantic help-seeking, self-harming, and angry outbursts that clinicians find challenging (Gunderson, 2001). For the adolescent offspring, lack of support for autonomy and relatedness may lead to deficits in self-regulation, including borderline features of affective instability and self-harm, which are both related to a pathway to suicide (Glenn, Bagge, & Osman, 2013).

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