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I am submitting herewith a thesis written by Stevie Nikell Grassetti entitled "Borderline Features and Attachment in Adolescents Whose Mothers Have Borderline Personality Disorder." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in Psychology.

Jenny Macfie, Major Professor

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Borderline Features and Attachment in Adolescents Whose Mothers Have Borderline Personality Disorder

A Thesis Presented for the
Master of Arts
Degree
The University of Tennessee, Knoxville

Stevie Nikell Grassetti
August 2011

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Dedication

To love and work.
…and important people, from cradle to grave— MGG, IG, SG, NG, EG, EG, HB, & SS.

Acknowledgements

Thank you to my committee—JM, PJF, & DRH and members of the Child and Adolescent Development Lab

Abstract

The current study examined attachment and borderline features in a sample of adolescents whose mothers have borderline personality disorder (BPD) (n =28) and normative comparison adolescents (n =29) using self-reports of parental attachment and borderline features. Statistical analyses revealed, with marginal significance, that adolescents of mothers with BPD provided lower ratings of *parents as sources of support* and lower ratings for the *affective quality* of parental attachment relationships than did comparison adolescents, but no difference for parents as facilitators of independence. As hypothesized, mothers with BPD provided significantly lower ratings than comparison mothers on each of the parental attachment quality subscales (affective quality of attachment, parental fostering autonomy, and parental role in providing emotional support). Dichotomous group differences were not found in adolescent borderline features other than *affect instability*. However, every subscale of maternal borderline features was positively correlated with adolescent *affective instability*. Additionally, maternal *affect instability* was related to adolescent *negative relationships*. Adolescent *negative relationships* were inversely related to ratings of *affective quality of attachment relationships*. Adolescent *identity problems* were negatively related to *parents as facilitators of independence.* Study findings aid in filling the gap in the minimal existing literature on adolescent offspring of women with BPD and yield clinical relevance in targeting prevention and intervention strategies for this group at risk for borderline features.

Table of Contents

Chapter 1 Introduction and Background…….....1
BPD. ……..……..2
Attachment in Adolescence ……..……..5
The Current Study …….....6
Chapter 2 Method.. ……...……..8
Participants……..8
Procedures …….....9
Measures …….....10
Attachment …….....10
Psychiatric Diagnoses and BPD Features…...…….....12
Demographics ……..……..13
Chapter 3 Results ……..13
Preliminary Analyses ……...……13
Hypothesis Testing……...……..13
Chapter 4 Discussion……...…….....16
List of References……..19
Appendix ……...27
Vita…….....37

List of Tables

Table 1 Demographic Information……..28
Table 2 Group Means and Standard Deviation in Parental Attachment……29
Table 3 Adolescent Borderline Features by Group…….....30
Table 4 Intercorrelations among Adolescent Parental Attachment and Adolescent Borderline Features…...…….…31
Table 5 Intercorrelations among Maternal Parental Attachment and Maternal Borderline Features……..32
Table 6 Intercorrelations among Maternal and Adolescent Attachment Quality……..33
Table 7 Intercorrelations among Maternal and Adolescent Borderline Features……..34
Table 8 Regression Analyses Maternal Borderline Features Predicting Adolescent Total Borderline Features……..35
Table 9 Regression Analyses Adolescent Attachment Qualities Predicting Adolescent Total Borderline Features……...……....36

Introduction and Background

Introduction

BPD is a severe and debilitating form of psychopathology characterized by emotional instability, impulsivity, chaotic interpersonal relationships, angry outbursts, and suicidality (Skodol et al., 2002). Offspring of parents with BPD have been found to be a group at risk for numerous negative psychological outcomes, including the disorder itself (for a review see: White, Gunderson, Zanarini, & Hudson, 2003). However, the relationship between the various risk factors and adolescent borderline pathology remains tenuous. To target prevention and intervention strategies, it is necessary to thoroughly explore potential relationships between risk factors and emerging borderline symptoms.

One potential risk factor, among many other environmental and genetic risk factors, is problems in the parent-child attachment relationship. Attachment refers to the lasting psychological connectedness between human beings, which is thought to be of utmost importance through the entire lifespan (Bowlby, 1969; 1982; 1979). Early relations are thought to provide templates for expectations and behavior in close relationships later in life (Engels, Finkenauer, Meeus, & Dekovic, 2001) and it has been suggested that attachment models may be transmitted from parents to children through emotional and behavioral interactions (Bretherton & Munholland, 2008). Thus, a mother's attachment relationship with her own parents might provide valuable predictive information on her future attachment relationship with her children. While not all people with problematic parental attachment relationships have BPD, attachment problems have been found to be extremely common amongst those with the disorder (See Levy, 2005 for review). Given an insecure parental attachment relationship, which is common in people with BPD, offspring of mothers with BPD are a particularly relevant group in which to

examine potential attachment relationship problems. While BPD cannot be diagnosed until late adolescence, the potential risk factor of disordered attachment holds etiological roots in early childhood. Early detection may yield a more positive prognosis for youth at risk for BPD. Thus, it is necessary to examine borderline features as they emerge, even before a diagnosis can be obtained. Surprisingly, little work has been done on adolescent offspring of mothers with BPD. Accordingly, the present study examined parental attachment factors and borderline features in adolescent offspring of mothers with BPD and a normative comparison group.

BPD

BPD has been described as a disorder of attachment (Fonagy, Target, & Gergely, 2000). In addition to theoretical and clinical evidence (Gunderson, 1996; Holmes, 2004), empirical findings suggest that secure, adaptive parental attachment relationships for those diagnosed with BPD are extremely rare (See Levy, 2005; Agrawal, Gunderson, Holmes, Lyons-Ruth, 2004 for reviews). Previous analysis of mothers in the current study's sample revealed results consistent with previous research; 83% of mothers in the BPD group (compared to 56% of mothers in the comparison group) were classified as insecure on the AAI (Fitzpatrick, 2009), suggesting problematic, maladaptive parental attachment relationships. The prevalence of insecure classification is overrepresented in this sample when compared with the normal distribution of 42% insecure (van IJzendoorn & Bakersman-Kranenburg 1996; 2008).

The characteristics of BPD yield negative outcomes for both those diagnosed with the disorder and their families. Prior research suggests that high levels of instability, conflict, disorganization, and low satisfaction characterize the families of mothers with BPD (Feldman, 1995, Chen et. al, 2004; Zimmerman & Coryell, 1989). BPD also is related to the familial aggregation of instability and impulsivity traits (Silverman et al., 1991). Individuals with a first-

degree biological relative with BPD are five times more likely than general population comparisons to be diagnosed with the disorder themselves (American Psychiatric Association, 2000). It is clear that the presence of BPD places family members at risk for several negative outcomes.

Prior research identified offspring of mothers with BPD as a group particularly at risk for various negative outcomes (see Macfie, 2009 for review). From as early at 1985, a case study has suggested that children of mothers with BPD experience serious emotional delays such as limited coping strategies and exhibit disturbed behavior such as becoming disorganization when confronted by affective stimuli (Danti, Adams, & Morrison, 1985). Since that time, empirical research has identified an array of group differences between offspring of mothers with BPD and comparison children, all suggesting that children of mothers with BPD are at risk for negative outcomes including dissatisfaction in mother-infant interactions (Crandell, Patrick, & Hobson, 2003), disorganized attachment (Hobson, Patrick, Crandell, Garcia-Perez, Lee, 2005) poor play representation of their attachment figures (Macfie & Swan, 2009), more psychiatric diagnoses and impulse control disorders (Weiss et al., 1996), depressive symptoms (Abela, Skitch, Auerbach, & Adams, 2005), low self-esteem (Barnow, Spitzer, Grabe, Kessler, & Freyberger, 2006), youth poor self-perception of the ability to make close friends and to be socially accepted (Herr, Hammen, & Brennan, 2008), and increased internalizing and externalizing symptoms (Grassetti, Jones, Temes, & Levy, 2011). However, to date, no studies have examined self-reported borderline features in adolescent offspring of mothers with BPD.

Similarly, research on attachment in offspring of mothers with BPD is sparse. Only two empirical studies have explored this topic. Hobson (2005) and colleagues found that, at 13-months, infants of women with BPD were mostly categorized as disorganized in the strange

situation, meaning that they displayed a mixture of insecure attachment behaviors that did not fit into another categorization of insecure attachment and were not able to find an organized strategy with which to relate to their mothers. The second study, using the same sample as the present study, found that, on attachment assessed by clinical interview, the Adult Attachment Interview (AAI, George, Kaplan & Main, 1985), adolescents of mothers with BPD were mostly dismissing, meaning that the adolescents minimized the impact of attachment relationships (Fitzpatrick, 2009). However, the same study also found that normative comparison adolescents were also dismissing (Fitzpatrick, 2009). This is, perhaps, consistent with the adolescents' decreased reliance on parents as attachment figures and "developing a new balance between attachment behaviors regarding parents and the adolescent's exploratory needs" (Allen, 2008, pg. 421). More empirical work needs to be done to understand the relationship between maternal BPD, adolescent parental attachment using self-report measures, and adolescent borderline features.

One way to do this may be to examine BPD and attachment in ways not used before with this population. Rather than a dichotomous conceptualization of BPD, borderline features also can be assessed. The Personality Assessment Inventory (PAI, Morey, 1991) is a self-report measure of psychopathology that yields borderline feature subscales including affective instability, negative relationships, impulsivity, and self-harm. While a high score on the features subscales suggests the presence of significant BPD features, it does not necessarily suggest the presence of a BPD diagnosis (Trull, 1995; Morey, 1991). However, the PAI borderline feature subscales yielded convergent validity with a structured interview for BPD at .78 (Kurtz & Morey, 2001). Similarly, rather than examine adolescent attachment categorically (secure versus insecure), a continuous measure describing facets of the attachment relationship may provide

further information.

Attachment in Adolescence

Adolescence is a particularly important developmental time for studying attachment. It is beginning in this time period that cognitive and emotional developments enable an adolescent to reflect upon his or her current state of mind regarding attachment. Thus, during adolescence, measurement possibilities extend beyond strictly behavioral observation used with infants. Self-reports and interview-based measures of parental attachment are first utilizable (Allen, 2008). Methodological expansion, particularly self-reports such as the Parental Attachment Questionnaire (PAQ, Kenny, 1990), offer advantages such as quicker data collection, the ability to evaluate attachment in component parts or qualities rather than as strict categories, and statistical advantages enabled by continuous measures of attachment.

Secondly, adolescence is a salient time for studying parental attachment because adolescents are moving towards becoming attachment figures themselves. In this transitional time period, adolescents move away from dependency on their parents; they move from being the receivers of care to becoming self-sufficient adults and potentially caregivers to peers, romantic partners, and their own offspring (Allen, 2008). In adolescence, romantic relationships and intimate friendships begin to be realized and to gain greater importance. Within them, adolescents have a new context in which to act out internal working models first formed in the initial attachment relationship. Thus, adolescent's parental attachment might provide valuable information for understanding and predicting adolescent social behavior.

Additionally, prior research identifies many adolescent outcomes associated with parental attachment as assessed by the PAQ. Higher ratings of qualities of the parental attachment relationship are associated with longitudinal reports of overall wellbeing (Kenny, Lomax,

Brabeck & Fife, 1998), lower levels of eating disorder behaviors (Kenny & Hart, 1992) and higher self esteem (McCurdy & Avraham, 1996). Adolescents who provide higher PAQ ratings report more social support, lower levels of depression, lower state anxiety, and fewer physical symptoms (Holmbeck & Wandrei, 1993). Conversely, lower ratings on the PAQ relate to greater depression, anxiety, and worry (Vivona, 2000). Higher ratings on the PAQ are also related to success in an important developmental task—adjusting to college (Kenny & Rice, 1995). In particular, in college populations, self-reported high parental attachment is related to academic adjustment, social adjustment, and personal/emotional adjustment (Hinderlie & Kenny, 2002). For female adolescents, high ratings correlate with social competency in the form of assertiveness (Kenny, 1994), higher intimacy development and greater adjustment to college (Vivona, 2000), higher self-perception of social confidence, feelings of personal effectiveness, interpersonal trust (Hart & Kenny, 1997), and overall higher levels of psychological wellbeing (Kenny & Donaldson, 1991). Clearly, high levels of self-reported parental attachment ratings yield many positive outcomes during adolescence. However, the presence of parental mental illness may make it difficult for some adolescents to form secure attachment relationships. To date, no studies have examined the attachment via the PAQ in clinical samples including samples with BPD and offspring of mothers with BPD. Additionally, no previous study examined the intergenerational transmission of attachment using the PAQ.

The Current Study

Accordingly, the current study aimed to aid in filling voids in the literature on BPD, parental attachment, and the intergenerational transmission of attachment and BPD. Prior evidence using self-report, interview, and observational measures suggests that people with BPD have problematic attachment relationships (Levy, 2005). Extant research suggests that parental

attachment (Bretherton & Munholland, 2008) and borderline traits like stability and impulsivity (Silverman et al., 1991). Yet, to date, only one study (Fitzpatrick, 2009) has examined attachment in adolescent offspring of mothers with BPD As categorical analyses reveal no group differences in adolescent parental attachment using the AAI and a categorical measure of BPD, it is important to look at borderline features (affect instability, identity problems, negative relationships, and self-harm) and a self-report measure of aspects of the attachment relationship (affect quality, parental fostering of autonomy, and parental role in providing emotional support) to gain a better understanding of how offspring of mothers with BPD experience the attachment relationship with their parents. Additionally, as no prior research has examined attachment qualities in a clinical sample or the intergenerational transmission of attachment qualities using the PAQ, the current study investigated both topics.

The current study had three goals. First, the study aimed to replicate and further explore the well-established relationship between BPD and insecure attachment by examining maternal diagnostic group differences in attachment qualities and by examining the hypothesized relationship between borderline features and attachment qualities in both age groups using the PAQ. Secondly, the study aimed to evaluate the putative relationship between maternal BPD and adolescent offspring outcomes by examining hypothesized adolescent group differences in parental attachment qualities and borderline features. Finally, the study aimed to evaluate the hypothesized relationship between maternal attachment quality and adolescent attachment quality and between maternal borderline features and adolescent borderline features in the sample as a whole. We hypothesized that: (1) mothers with BPD would rate qualities of their parental attachment relationship (affective quality of attachment, parental fostering of autonomy, and parental role in providing emotional support) as lower than comparison mothers; (2) in both

the mother and adolescent sub-samples, parental attachment qualities (affective quality of attachment, parental fostering of autonomy, and parental role in providing emotional support) would negatively correlate with borderline features (affective instability, identity problems, negative relationships, and self-harm); (3) adolescents of mothers with BPD would rate their parental attachment qualities (affective quality of attachment, parental fostering of autonomy, and parental role in providing emotional support) as lower than comparison adolescents; (4) adolescents of mothers with BPD would endorse higher levels of borderline features (affective instability, identity problems, negative relationships, and self-harm) than comparison adolescents; (5) in the sample as a whole, maternal attachment qualities (affective quality of attachment, parental fostering of autonomy, and parental role in providing emotional support) would correlate with adolescent attachment qualities (affective quality of attachment, parental fostering of autonomy, and parental role in providing emotional support); (6) in the sample as a whole, maternal borderline features (borderline features total, affective instability, identity problems, negative relationships, and self-harm) would positively correlate with adolescent borderline features (borderline features total, affective instability, identity problems, negative relationships, and self-harm).

Method

Participants

Participants in this study were a group of *N* =57 adolescents age 14-18 years (*M* =15 years 6 months), who participated in a larger study that explored parent-child relationships. Of the sample, 51% (*n* =29) were female, 49% were male (*n* =28). The racial make up of the sample was mostly Caucasian (93%, *n* =53), 7% (*n* =4) racially identified as bi-racial, 0% African

American, 4% Hispanic. See Table 1 for demographic information. (All tables are located in the appendix).

Adolescents whose mothers had BPD, *n* =28, were recruited from the community and clinical settings in a mid-sized southeastern city and 5 surrounding counties including urban and rural areas. Recruitment occurred in two ways. First, the research team obtained referrals from various mental health professionals in local hospitals, community mental health centers, and private practice. Secondly, flyers were posted through out the community. The flyers listed questions about BPD symptoms and invited mothers with adolescents ages 14-17 to contact the lab.

Adolescents whose mothers did not have BPD, *n* =29, were also recruited from two sources. First, research assistants distributed brochures to mothers at local high schools during various extra-curricular activities such as sporting events. Secondly, participants were recruited from flyers posted throughout the community, asking mothers with adolescents ages 14-17 to participate in a study on parent-child interactions. Flyers targeting comparison participants did not list BPD symptoms.

Procedures

Interested women were screened over the telephone where preliminary demographic information and possible BPD diagnosis were assessed. Adult inclusion criteria in this study consisted of being a mother of an adolescent-aged child. Exclusion criteria included evidence of psychosis. All women who met inclusion criteria and did not meet the exclusion criteria were invited to participate.

Following the phone screen, eligible participants were asked to schedule an initial appointment where two research assistants would visit the participant either in her home or at an

other meeting place suggested by the participant. During this visit, research assistants explained the details of the study and obtained informed consent from the mother for the participation both of herself and of her adolescent. Additionally, informed assent was obtained from adolescent participants. During the initial visit, mother participants completed a self-report screening measure for BPD symptoms and were interviewed about demographic information. Typically, this visit was completed in one hour. If the participant met eligibility criteria, she and her adolescent were invited to schedule a second visit to take place in the research lab.

During the lab visit, mother and adolescent participants were lead through separate, standardized procedures that included filling out self-report questionnaires. During this visit, of approximately three hours, mothers' BPD status was assessed using a structured, clinical interview administered by a licensed clinical psychologist, JM.

Upon conclusion of the lab visit, all participants were debriefed and monetarily compensated for their time. The research team invited the family to call the lab with remaining any questions. The day after the completion of the lab visit, a member of the research team attempted to contact each mother to thank her for participating and to offer a final opportunity to ask any remaining questions.

Measures

Attachment

The Parental Attachment Questionnaire (PAQ, Kenny, 1990)- The Parental Attachment Questionnaire is a 55-item self-report questionnaire developed to assess parental attachment. Participants are asked to respond to each of the items by choosing a number on a 5-point likert scale that best describes their parents, their relationship with their parents, and their attachment experiences in general. As a result of research suggesting the importance of overall family

environment rather than specific relationships with individual parents, parents are rated in combination instead of separately (Bell et al., 1985, as cited in Kenny, 1990). Scores are calculated for three subscales—Affective Quality of Attachment, Parental Fostering of Autonomy, and Parental Role in Providing Emotional Support. Respondents are not categorized into "secure" and "insecure" using cut off scores. Instead, this measure allows for a qualitative description of the respondent's parental attachment relationship. These qualitative ratings, rather than an overall dichotomous "secure" or "insecure" classification, may provide information on particular problematic areas in the attachment relationship that may add to what we know from the AAI.

The measure is test-retest reliable *(a* =.92*)* and validly correlated with subscales of the Moos Family Environment Scale (FES, Moos & Moos, 1994), a measure used to assess social and environmental characteristics of families including cohesion, (Kenny, 1990; Moos & Moos, 1994). Specifically, significant correlations were obtained between Affective Quality of Attachment on the PAQ and Cohesion (r =.51, p<.001) and Moral-Religious Orientation (r =.36, p<.01) on the FES , between Parental Fostering of Autonomy on the PAQ and Expressiveness (r =.33, p<.01), Independence (r =.35, p<.01) and Control (r =-.40, p<.01) on the FES and between Parental Role in Providing Emotional Support on the PAQ and Cohesion (r =.45, p<.001) and Expressiveness (r =.33, p<.01) on the FES (Kenny, 1988). Neither measure has been validated with other measures of attachment. However, the three factor scales are theoretically consistent with Ainsworth et al.'s (1978) conceptualization of attachment as an enduring affective bond, which serves as a secure base in providing emotional support and in fostering autonomy and mastery of the environment. Validity analyses of the current sample suggests high internal

consistency of each subscale; affective quality of attachment (*a* =.94), parental fostering of autonomy (*a* =.78), and parental role in providing emotional support (*a* =.83).

Psychiatric Diagnosis and BPD features

The Personality Assessment Inventory (PAI, Morey, 1991)-The Personality Assessment Inventory is a valid and reliable self-report instrument that evaluates psychopathology (Morey, 1996). Respondents are asked to rate their experiences on a 4-point likert scale (false, somewhat true, mainly true, and very true). The Personality Assessment Inventory (PAI, Morey, 1991) is a self-report measure of psychopathology that yields 22 non-overlapping scales. The borderline features total and borderline features subscales of this measure were utilized in this study. The subscales include affective instability, negative relationships, impulsivity, and self-harm. While a high score on the features subscales suggests the presence of significant BPD features, it does not necessarily suggest the presence of a BPD diagnosis (Trull, 1995; Morey, 1991). However, the PAI borderline feature subscales have yielded high convergent validity with a structured interview for BPD (Kurtz & Morey, 2001). Cronbach's alpha, a measure of internal consistency for the total of all four subscales was, *a* =.74 in the adolescent sample as a whole and *a* =.84 in the mother sample as a whole.

The Structured Clinical Interview for DSM-IV Axis II Disorders (SCID II, First, Gibbon, Spitzer, Williams & Benjamin, 1997) -The Structured Clinical Interview for DSM-IV Axis II (SCID-II) is a semi-structured interview for making DSM-IV axis II diagnoses. The validity of the current version of the SCID-II has not been empirical validated. However, previous versions have shown high validity with a diagnostic power of .85 or greater for 5 personality disorders (Skodol et al., 1988). Two studies examining the reliability of the measure (Lobbestael, Leurgans, & Arntz, 2011; Maffei et. al, 1997) have found high interrater-reliability, *k* =.91 in

both studies, for the borderline features subscales. In the current sample, SCID diagnosis and maternal total borderline features were correlated at r =.69.

Demographics

Demographics- Demographic information was collected using a maternal interview (MHFC, 1995). Demographic information is reported in table 1.

Results

Preliminary Analyses

Before hypothesis testing, data were evaluated for missing data. Only 1.8% of the data in adolescent variables of interest were missing. Due to having both parents deceased, 8.77% of mothers' PAQ data was missing. Given the small percentages, no further procedures were used to handle missing data. Then, preliminary analyses were conducted to test for possible covariates. There were two significant demographic differences between the BPD and normative comparison groups such that mothers with BPD were younger and less likely to have completed high school than comparison mothers. However, neither demographic variable was correlated with dependent variables. Thus, they were not controlled for in subsequent analyses. See Table 1 for means, *SDs,* and significance tests.

Hypothesis Testing

An independent-sample t-test was conducted to compare attachment qualities in the mother sample. In full support of the hypothesis 1, mothers with BPD provided significantly lower ratings than comparison mothers on each of the parental attachment quality subscales. Mothers provided lower ratings for *the affective quality of attachment (*$t(51)=2.55$*,* $p<.05$*)* , *parental fostering autonomy* ($t(51)=2.12$*,* $p<.05$), and *parental role in providing emotional support* ($t(51)=3.38$*,* $p<.001$). See Table 2 for means and standard deviations.

Hypothesis 2 was first examined in the adolescent sample using a two-tailed bivariate correlation. Tests revealed significant negative relationships between adolescents' parental attachment quality *affective quality of relationship* and adolescents' *negative relationship* borderline feature and between the adolescents' parental attachment quality *parents as facilitators of independence* and the adolescent *identity problems* borderline feature. See Table 4 for full correlation data. After reporting correlations between adolescent borderline features, researchers explored the weights of correlations found between adolescent parental attachment qualities and adolescent total borderline features. A simultaneous regression analysis was conducted with the three adolescent parental attachment qualities, *affective quality of relationship, parents as facilitators of independence,* and *parents as sources of support* as the independent variables and adolescent *total borderline features* as the dependent variable. Results are summarized in Table 9.

Then, a two-tailed bivariate correlation was conducted in the mother sample. Tests revealed significant negative relationships between the maternal parental attachment quality *affective quality of relationship* and the maternal borderline feature *negative relationships* and between the maternal attachment quality *parental role in fostering autonomy* and the maternal borderline feature *negative relationship.* See Table 5 for full correlation data.

Hypothesis 3 was examined via an independent-samples *t*-test to compare attachment qualities in adolescents of mothers with BPD and comparison adolescents. Given the relatively small sample size, two-tailed values below .10 were considered marginally significant. In partial support of the prediction, a *t*-test revealed that adolescents of mothers with BPD provide lower ratings of their *parents as sources of support* ($t(55)= 1.80$, $p <.10$) and lower ratings of the *affective quality* of their parental attachment relationships ($t(55)=1.89$, $p <.10$) than did

comparison adolescents. However, adolescents of mothers with BPD and comparison adolescents did not significantly differ in how they rated their *parents as facilitators of independence* ($t(55)=0.42$, $p>.10$) . Results are summarized in Table 2.

Hypothesis 4 also was examined via a *t*-test. Contrary to hypothesis, adolescents of mothers with BPD did not differ from comparison adolescents in the borderline features of identity problems ($t(55)= 0.97$, $p>.05$), negative relationships ($t(55)= 0.73$, $p>.05$) , and self-harm ($t(55)= 1.44$, $p>.05$) . However, in support of the hypothesis, adolescents whose mothers had BPD did endorse more affect instability than did comparison adolescents ($t(55)= 2.49$, $p<.05$). Results are summarized in Table 3.

To evaluate hypothesis 5, a two-tailed Pearson bi-variate correlation between maternal parental attachment quality and adolescent parental attachment quality was conducted. Contrary to hypothesis, no significant correlations emerged between maternal parental attachment qualities and adolescent parental attachment qualities. Results are summarized in Table 6.

To evaluate hypothesis 6, a two-tailed Pearson bi-variate correlation between maternal borderline features and adolescent borderline features was conducted. Analysis revealed significant relationships between every maternal borderline feature and the adolescents' borderline feature *affect instability*. Additionally, a significant relationship was found between maternal *affect instability* and adolescent *negative relationships*. See Table 7 for full correlation data. After reporting correlations between maternal and adolescent borderline features, investigators wanted to see which of the several maternal borderline features has the strongest relationship to total adolescent borderline features. Data were entered into a simultaneous linear regression analysis with the four maternal borderline features (*affect instability, identity*

problems, negative relationships, and self-harm) as independent variables and adolescent *total borderline features* as the dependent variable. Results are summarized in Table 8.

Discussion

The current study examined parental attachment and borderline features in mothers with BPD, their adolescent offspring, and normative comparison dyads. As hypothesized, mothers with BPD provided significantly lower ratings than comparison mothers on each of the parental attachment quality subscales (affective quality of attachment, parental fostering autonomy, and parental role in providing emotional support) and adolescents of mothers with BPD provided lower ratings of their parents as sources of support and lower affective qualities in their parental attachment relationships than did comparison adolescents. Moreover, analysis revealed significant, negative relationships between the maternal parental attachment quality *affective quality of relationship* and the maternal borderline feature *negative relationships* and between the maternal attachment quality *parental role in fostering autonomy* and the maternal borderline feature *negative relationship.* Similarly, significant, negative relationships were found between adolescents' parental attachment quality *affective quality of relationship* and adolescents' *negative relationship* borderline feature and between the adolescents' parental attachment quality *parents as facilitators of independence* and the adolescent *identity problems* borderline feature. Furthermore, significant relationships were found between every maternal borderline feature and the adolescents' borderline feature *affect instability*. Additionally, a significant relationship was found between maternal *affect instability* and adolescent *negative relationships.*

While adolescents whose mothers had BPD did endorse higher levels of the borderline feature *affect instability* than comparison adolescents*,* adolescent groups did not differ in the borderline features of *identity problems*, *negative relationships*, and *self-harm*. Also contrary to

hypothesis, no significant correlations emerged between maternal parental attachment qualities and adolescent parental attachment qualities.

Results from the current study add to what we already know from the sole study on attachment in adolescent offspring of mothers with BPD. Prior research suggests that adolescence is a time when people typically minimize the importance of parental attachment (Allen, 2008). Prior research using the AAI on the same sample did not detect attachment-related group differences (Fitzgerald, 2009). However, even given the developmental commonality with regard to attachment, offspring of mothers with BPD did provide lower ratings of the affective quality of their relationships and their parents as sources of support than did comparisons in this study. Thus, the current study is the first to point out specific areas in which the attachment relationship differs between normative mother-adolescent dyads and dyads in which the mother has BPD. This finding has important implications for attachment-based interventions, specifically, that interventions might target affective quality of relationships and promoting parental supportive practices as these are both areas in the attachment relationship where group differences may exist. These findings also suggest the importance of the PAQ as an additional measure of attachment in adolescence, adding information that the AAI does not provide. However, contrary to hypothesis, no correlations between maternal attachment ratings and adolescent attachment ratings were found. This suggests that the intergenerational transmission of attachment may be more complicated that a repetition of modeled behavior. Potential moderating factors should be examined using alternate measures through out the developmental lifespan.

The study also offered important information on the intergenerational transmission of borderline features. Surprisingly, adolescent offspring of mothers with BPD did not differ from

comparison offspring in most borderline features. However, there were significant group differences in the borderline feature *affect instability.* As BPD can only first be diagnosed in late adolescence and the mean age of participants in this study was 15.5 years, perhaps *affect instability* is one of the earliest borderline features to emerge. Further work needs to be done to examine emerging borderline features in samples with a smaller age ranges which, taken together, span the adolescent developmental period. This study also found that every maternal borderline feature positively related to adolescent *affect instability* suggesting that *affect instability* might be a worthy area to target in treatment of offspring of mothers with BPD or borderline symptoms.

Study results should be interpreted while considering the study's limitations. First, this study was cross-sectional in design, causation should not be assumed by correlated factors. Secondly, the sample size in this study was small and lacked racial diversity, though the racial diversity of the sample did mirror that of the area of the country from where it was collected. Though borderline features and BPD were of interest to this study, BPD has been found to be highly co- morbid with other mental illnesses. Maternal and adolescent co-morbidity was not evaluated in this study but may provide additional information on the links supported by this data. Future studies should address these limitations using additional methods and prospective designs to further explore this important topic. Future studies should also compare the AAI and PAQ to enable possible synthesizing of findings from each line of attachment research. Parental attachment is basic to the development of infants, children, and adolescents with important implications for relationships in adulthood. Study of parental attachment in at-risk populations may not only inform our understanding of the nature of risk, but also inform our understanding of what is needed for adaptive development to occur in normative populations.

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Appendix

Table 1. *Demographic Information.*

Variable	Whole Sample *N* =57	BPD *n* =28	Normative Comparison *n* =29	
	M (SD)	*M (SD)*	*M (SD)*	*t*
Child Age (years)	15.48 (1.21)	15.22 (1.13)	15.73 (1.25)	1.63
Mother Age (years)	41.04 (6.13)	39.11 (5.13)	42.90 (6.51)	2.44*
Family Yearly Income ($)	25,754 (14,646)	22,509 (12,784)	28,886 (15,835)	1.67
Number of Children in the Home	2.46 (1.69)	2.18 (1.36)	2.72 (1.94)	1.22
Number of Adults in the Home	1.81 (.72)	1.68 (.67)	1.93 (.75)	1.34
				λ^2
Child Sex (Female)	51%	50%	52%	0.02
Child Minority Ethnic Background	7%	4%	10%	1.00
Child Hispanic	4%	4%	4%	0.00
Single Mother	29.8%	32.14%	27.59%	0.14
Mother Graduated High School or GED	86%	72%	100%	9.64*

*$p<.05$

Table 2. *Group Means and Standard Deviations in Parental Attachment*

Attachment Quality	Adolescents of Mothers with BPD	Comparison Adolescents	Mothers with BPD	Comparison Mothers
	n =28 *M (SD)*	*n =29* *M (SD)*	*n =25* *M (SD)*	*n =28* *M (SD)*
Affective Quality of Relationship	99.64 (20.19)	108.24 (13.67)	*83.80 (28.57)*	*102.64 (25.29)*
Parents as Sources of Support	43.71 (8.86)	47.76 (8.14)	*42.80 (12.83)*	*50.29 (11.97)*
Parents as Facilitators of Independence	49.50 (8.37)	48.59 (7.88)	*31.48 (11.61)*	*42.04 (11.09)*

**p<.10; **p<.05; ***p<.01*

Table 3. *Adolescent Borderline Features by Group*

Borderline Feature	Adolescents of Mothers with BPD *M (SD)*	Comparison Adolescents *M (SD)*	*t*	*df*
Identity Problems	7.25 (3.41)	6.48 (2.50)	0.97	55
Negative Relationships	8.07 (2.52)	7.55 (2.82)	0.73	55
Self-Harm	6.50 (3.01)	5.41 (2.67)	1.44	55
Affect Instability	8.96 (2.44)	7.59 (1.68)	2.49*	55

*$p < .05$

Table 4. *Intercorrelations among Adolescent Parental Attachment and Adolescent Borderline Features*

Variables	*n*	*M*	*SD*	1	2	3	4	5	6
1 Adolescent Affect Instability	57	8.26	2.18						
2 Adolescent Identity Problems	57	6.90	2.99	.43**					
3 Adolescent Negative Relationships	57	7.80	2.67	.40**	.26**				
4 Adolescent Self-Harm	57	5.95	2.87	.60**	.58**	.37**			
5 Adolescent Affective Quality of Attachment Relationship	57	104.02	17.57	-.16	-.19	-.26*	-.15		
6 Adolescent Parents as Facilitators of Independence	57	49.04	8.07	-.14	-.28*	-.24	-.09	.69**	
7 Adolescent Parents as Source of Support	57	45.77	8.67	.03	.04	.03	.03	.74**	.44**

**p <.01; *p<.05

Table 5. *Intercorrelations among Maternal Parental Attachment and Maternal Borderline Features*

Variables	*n*	*M*	*SD*	1	2	3	4	5	6
1 Maternal Affect Instability	56	7.16	2.56						
2 Maternal Identity Problems	56	6.52	4.27	.65**					
3 Maternal Negative Relationships	56	8.32	2.72	.57**	.59**				
4 Maternal Self-Harm	56	4.86	3.23	.53**	.67**	.61**			
5 Maternal Affective Quality of Attachment Relationship	52	93.75	28.27	.00	-.24	-.33*	-.17		
6 Maternal Parents as Facilitators of Autonomy	52	46.75	12.83	.15	-.18	-.32*	-.18	.89**	
7 Maternal Parents as Source of Support	52	37.06	12.42	-.01	-.18	-.24	-.01	.81**	.73**

**p <.01; *p<.05

Table 6. *Intercorrelations among Maternal and Adolescent Attachment Qualities*

Variables	*n*	*M*	*SD*	1	2	3	4	5
1 Adolescent Affective Quality of Attachment Relationship	57	104.02	17.57					
2 Adolescent Parental Fostering of Autonomy	57	49.04	8.07	.69**				
3 Adolescent Parents as Sources of Support	57	45.77	8.67	.74**	.44**			
4 Maternal Affective Quality of Attachment Relationship	53	93.75	28.27	.50	.03	.18		
5 Maternal Parental Fostering of Autonomy	53	46.75	12.83	.01	.02	.13	.89**	
6 Maternal Parents as Sources of Support	53	37.06	12.42	.01	-.07	.16	.80**	.73**

**p <.01; *p <.05

Table 7. *Intercorrelations among Maternal and Adolescent Borderline Features*

Variables	*n*	*M*	*SD*	1	2	3	4	5	6	7
1 Adolescent Affect Instability	57	8.26	2.18							
2 Adolescent Identity Problems	57	6.86	2.98	.43**						
3 Adolescent Negative Relationships	57	7.80	2.67	.40**	.26*					
4 Adolescent Self-Harm	57	5.95	2.87	.60**	.58**	.37**				
5 Maternal Affect Instability	50	7.16	2.55	.47**	.21	.27*	.25			
6 Maternal Identity Problems	50	6.52	4.27	.42**	.09	.11	.23	.65**		
7 Maternal Negative Relationships	50	8.32	2.72	.33*	.01	.13	.16	.57**	.59**	
8 Maternal Self-Harm	50	5.95	2.87	.46**	.07	.18	.12	.53**	.67**	.60**

**p <.01; *p <.05

Table 8. *Regression Analyses Maternal Borderline Features Predicting Adolescent Total Borderline Features*

Independent Variables	β	B	*t*	R^2 (adj.)	*F*	*df*
Affect Instability	.38	1.22	2.13**	.15 (.08)	2.16*	4, 51
Identity Problems	.05	0.10	0.25			
Negative Relationships	-.05	-0.16	0.29			
Self Harm	-.01	-0.04	0.07			

**p<.10; **p<.05; ***p<.01*

Table 9. *Regression Analyses Adolescent Attachment Qualities Predicting Adolescent Total Borderline Features*

Independent Variables	β	B	*t*	R^2 (adj.)	*F*	*df*
Affective Quality of Relationship	-.55	-.25	2.36**	.18 (.13)	3.78**	3,53
Parents as Facilitators of Independence	-.08	-.08	0.47			
Parents as Source of Support	.48	.45	3.58**			

**p<.10; **p<.05; ***p<.01*

Vita

Stevie N. Grassetti was born in York, Pennsylvania in August 1987 to Stephen and Ileen Grassetti. She studied Psychology at the Pennsylvania State University in State College, Pennsylvania under the mentorship of Kenneth N. Levy, Ph.D. In 2009, she graduated from the Schreyer's Honors College with B.A. with honors in Psychology, with highest distinction. Select honors and awards include the Presidents Award for Freshmen (2006), the Sparks award for Sophomores (2007), the Evan Pugh Scholar award (2008, 2009), College of Liberal Arts Scholarship Awards (2006, 2007, 2008, 2009), Penn State University Undergraduate Research enrichment Award (2008), Penn State University Psychology Department Support for Research (2008), Penn State University Discovery grant for Research (2008), and 3rd place at the Pennsylvania State University Research Exhibition (2009).

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