

SPECIFICITY OF INSECURE ATTACHMENT IN ADOLESCENTS WITH BPD:
USING A GROUP COMPARISON WITH PSYCHIATRIC AND HEALTHY CONTROLS

by
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SPECIFICITY OF INSECURE ATTACHMENT IN ADOLESCENTS WITH BPD:
USING A GROUP COMPARISON WITH PSYCHIATRIC AND HEALTHY CONTROL

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ABSTRACT

BPD has been conceptualized by previous research as a disorder of insecure attachment. However, whether BPD features demonstrate a higher magnitude of insecure attachment over and above other psychiatric disorders has been largely uninvestigated. The present study used a three-group comparison (Inpatient with BPD, Inpatient without BPD, and Healthy control) to investigate the specificity of insecure attachment in BPD adolescents. **Methods:** Inpatient sample (n=521) & healthy control sample (n=294) ages 12-17 years completed measures of attachment security. Pearson's correlations, independent t-test were carried out to determine variable relationships. Finally hierarchical regression analyses were carried out to examine the incremental contribution of BPD symptoms, over and above internalizing and externalizing symptoms, in predicting attachment security **Results:** results suggested that among adolescents ages 12-17 years old, BPD patients demonstrate significantly lower (less secure) scores on a measure of attachment security. BPD features show predictive power in relation to attachment security, over and above internalizing and externalizing symptoms. **Conclusions:** In summary, our results suggest that among adolescents ages 12-17 years old, BPD patients demonstrate significantly lower (less secure) scores on a measure of attachment security, and BPD features show predictive power in relation to attachment security, over and above internalizing and externalizing symptoms.

Keywords: Attachment security, insecure attachment, adolescents, BPD, psychiatric inpatients

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Introduction

Attachment theory & Psychopathology

Attachment theory posits that a child's early relationship with a primary caregiver shapes how the child develops his or her perception of self and environment (Bowlby, 1973). John Bowlby originally conceptualized the attachment construct and proposed that humans have an evolutionary need to seek proximity and care from primary caregivers. A "secure" sense of self develops when this need is fulfilled (Agrawal, Gunderson, Holmes & Lyons-Ruth, 2004). Mary Ainsworth, an early attachment theorist and researcher, defined attachment as an affectional tie that a person forms with a significant caregiver in an association that binds and endures (Ainsworth & Bell, 1970). According to Ainsworth, the hallmark behaviors of the attachment system are those the child uses to seek and maintain a certain degree of proximity to the object of attachment. For human infants, this could involve proximity seeking, smiling, and crying. When this pattern evokes reciprocal caretaking behaviors such as touching, holding, and soothing, an affective tie develops between infant and caregiver, which endures through the lifespan. Additionally, responses by the caregiver serve as a template for later relationships, beliefs, and expectations.

Ainsworth carried out the Strange Situation study to assess attachment behaviors. Her Strange Situation paradigm included a novel procedure designed to activate attachment behaviors in 1-year-old infants by subjecting them to separation and reunion from their caregiver. Three attachment patterns or styles were observed: secure, avoidant, and ambivalent. The secure group explored the room with confidence, using the mother as a secure base. When separated from the mother, infants with secure attachment showed distress. But once reunited

with the mother, the secure child welcomed the mother with excitement. The avoidant child showed emotional distance even in the mother's presence, showed no distress at the mother's departure, and avoided the mother on return. The ambivalent child showed extreme distress at the mother's exit, continued crying upon reunion with the mother, and refused to be soothed (Ainsworth & Bell, 1970). A fourth attachment pattern (disorganized) was discovered by Main and Solomon (1986) after reviewing Strange Situation tapes. Infants within the disorganized category showed an approach-avoidance pattern with their parents. They would seek their parent but still avoid their parents and exhibit fearful facial expressions towards parents, dazed or trance-like expressions, and asymmetrical movements (Holmes, 2004; Lyons-Ruth & Jacobvitz, 1996; Main & Solomon, 1986). Interestingly, infant attachment patterns were correlated with mothers' sensitivity; babies of sensitive mothers were more likely to be securely attached, while babies with less sensitive mothers were more likely to be classified as insecurely attached (Bretherton, 1992). Twenty years later, original participants of the Strange Situation procedure, were re-contacted and interviewed with the Adult Attachment Interview (AAI). The results showed that 72% of the participants received the same attachment classification as infants (Waters et al., 2000), demonstrating that early attachment experiences have a lasting effect across the lifespan.

Internal working models (IWMs) are mental representations of children's concept of self, others, and how they perceive the world and are developed through interactions with parents at an early stage (Fonagy, Target & Ggely, 2000). Alternatively, when a child's primary attachment figures are unreliable or insensitive, failing to respond to the child's attempts at proximity seeking, the child's sense of security is compromised, and an insecure sense of self

and others are formed. This implicates insecure attachment as a vulnerability for psychopathology.

Insecure attachment has been associated with psychological functioning across the lifespan. For example, Goodal, et al. (2015) found that higher attachment insecurity correlated with greater schizotypal behavior. Depression, suicide, and self-aggression have also been implicated in insecure attachment (Gomley, et al., 2010). Insecure attachment has also been found to play a crucial role in childhood trauma and the development of eating disorders, as patients who were diagnosed with eating disorders are more likely to have experienced insecure attachment with their caregivers (Tasca et al 2012). In a cross-cultural study that sought to examine correlations between psychopathology and attachment, people with secure attachment styles were found to have less psychopathology, while high levels of attachment anxiety were correlated with psychotic symptoms such as hallucinations, paranoia, and suspicions and attachment avoidance was correlated with emotional and social withdrawal (Korver -Neiberg et al 2015). It is important to note that insecure attachment itself is not pathological but increases the incremental probability of psychopathology developing (Sroufe, 2005).

BPD & Insecure Attachment

BPD is a pervasive pattern of instability in personal relationships, behavior, self-image, and affect which most often onsets in adolescence (APA, 2013). Gunderson (1996) proposed that individuals with BPD experience intolerance of being alone as a consequence of early problematic attachment. He also posited that borderline symptoms, such as fear of abandonment and related behaviors result from a preoccupied attachment style.

A review of multiple adult studies showed the prevalence of insecure attachment among BPD patients was over 90%. Using the AAI, patients were classified as preoccupied & unresolved

(occurs when individuals seek close, intimate relationships, but do not respond accordingly with their partners) (Agrawal et al. 2004). Parallels have also been drawn between disorganized attachment and BPD (Holmes, 2004) because some patterns of disorganization echo symptoms of BPD. For example, disorganized infants see their caregivers as a secure base and also a threat, which is similar to how individuals with BPD devalue and idealize partners and caregivers. Additionally, disorganized behaviors such as trance-like and dazed or confused expressions are similar to BPD symptoms of dissociation (Milkovitch et al, 2018). Consistent with these claims, in a meta-analytic study, 50-80% of participants with BPD showed unresolved, fearful, and preoccupied attachment styles on the AAI. These patterns are equivalent to ambivalent and disorganized attachment patterns described above (Agrawal et al., 2004)

Previous Studies Limitations

Previous studies have shown compelling evidence for associations between BPD and insecure attachment. However, the literature is still unclear whether BPD features shows magnitude over and above other forms of psychopathology in insecure attachment. Although Nickell, Waudby, and Trull (2002) addressed the issue of specificity by carrying out hierarchical regression analysis on attachment variables and found insecure attachment as a predictor of borderline pathology, accounting for 66 % of the variance in BPD features above and beyond Axis I and Axis II (i.e., non-BPD) pathology, gender, and childhood adversity.

Another limitation in the study of the specificity of insecure attachment styles to BPD is the underusage of adolescent samples. Empirical data has shown that BPD becomes clinically apparent during adolescence (Kaess et al, 2014; Sharp & Fonagy, 2015). Prevalence rates in adolescents suggest that 1.4 % of young people will meet diagnostic criteria for BPD by age 16, rising to 3.2% by age 22, compared to the adult prevalence rate of 0.7%-2.7%. BPD has also

shown an estimated prevalence of 11% in psychiatric outpatients and up to 50% in psychiatric inpatients (Kaess et al, 2014). Although symptom severity often declines with adulthood, adolescents with BPD experience long-term adverse effects such as less productivity, less educational attainment, less social support, and decline in life satisfaction over 20 years (Cohen & Chen, 2008). Hence, early assessment and treatment in adolescence is pertinent to mitigate the long-term effects of borderline pathology (Sharp & Fonagy, 2015). Finally, previous literature has primarily focused on maternal attachment at the exclusion of paternal attachment. Because BPD patients tend to perceive fathers as the "rejector" and mothers as "rescuers" (Sack, Spertling Fagen & Foelsch, 1996), it is vital to study both the maternal and paternal attachment styles of BPD patients.

PRESENT STUDY

Whether insecure attachment shows specificity or uniqueness to BPD over and above other forms of psychopathology is still largely uninvestigated. Against this background, the current study aimed to determine 1) whether significant differences in attachment exist between inpatients with BPD, other psychiatric disorders, and healthy controls. and 2) whether borderline pathology accounts for additional variance in insecure attachment above and beyond internalizing and externalizing psychopathology. To our knowledge, this will be the first study to investigate the specificity of insecure attachment styles to BPD among both a clinical sample and a healthy control group. To this end, the study hypotheses are as follows: 1) the BPD group will demonstrate lower scores (less security) on measures of attachment compared to the psychiatric and healthy control groups, and 2) BPD features will demonstrate incremental predictive utility above and beyond internalizing and externalizing pathology in statistically predicting insecure attachment.

Methods

Participants

Study participants came from two samples: an inpatient sample and a community sample. Informed written consent and assent were collected from parents and adolescents, respectively. Participants were required to be between the ages of 12-17 and be fluent in English. Other exclusion criteria included active psychosis; a diagnosis of schizophrenia, other psychotic disorders, or autism spectrum disorder; and $IQ < 70$.

The first sample consisted of adolescents ($N = 521$) admitted into the adolescent unit of a private psychiatric hospital in the Southwestern United States. The gender distribution of the sample was 64.7% female and 35.3% male, with a mean age of 15.39 years ($SD = 1.39$). The majority of the sample was White (77.5%), and other ethnicities represented were Black/African American (1.9%), Asian (3.3 %), American Indian/Alaskan native (.2%), and Multiracial/other (6.0%). Of this sample $n = 324$ inpatients met criteria for a mood disorder (62.2 %), childhood externalizing disorder (ADHD, ODD, CD), $n=207$ (39.7%), anxiety disorder $n= 291$ (55.9 %), and substance use disorder $n= 42$ (8.1%), as diagnosed by the Diagnostic Interview Schedule for Children-Computerized Version (NIIMH DISC-IV; Shaffer et al., 2000)

The community sample included $N = 294$ adolescents, aged 12-17 ($M = 14.94$, $SD = 1.459$), recruited from an urban school and online advertising postings in the Southwestern United States. The gender distribution for this group was 67.7 % female and 32.3%, male. Of this sample, 65% of adolescents identified as Hispanic, 18.4 % Asian, 10.9 % African American/Black and 5.1 % White. The exclusion criteria for the healthy controls included; no report of receiving a diagnosis within a year, no report of diagnosis of a psychiatric disorder

(including GAD, depression, PTSD, substance abuse disorder , etc) and scoring above the clinical cut off of 66 on the Borderline Personality Features for Children (BPFSC)

Measures

Attachment Security

The Security Scale (SS; Kerns, Klepac & Cole, 1996) was developed to measure the concept of parent-child security in middle childhood and early adolescence, it assesses security with father and mother on separate scales. According to Kerns et al. (1996), the items on the scale tap into the following: (a) the degree to which a child perceives that a parent would be available and responsive to his/her needs; (b) the degree to which a child perceives that he/she can rely on the parent in times of stress; and (c) ease with which the child can communicate with his/her parent. The SS is a 15 items self-report measure containing items like: "Some kids are sure their father would not leave them but other kids wonder if their father would leave them" "Really true of me /Sort of True of me". For each item, participants must indicate which statement is more characteristic of them. Each item is scored on a 4-point Harter's (1982) scale with higher scores indicating high attachment security and lower scores indicating low attachment security. The Security Scale for Father and Security Scale for Mother are each divided into 2 subscales: perceived dependability and perceived availability. To measure internal consistency and discriminant validity, Kerns et al (1996) examined 71 middle school children using the Security Scale and Harter's Perception Scale (1982), which assesses self-esteem across several domains including scholastic competence, physical appearance, and peer acceptance. The scores on the Security Scale showed good internal consistency ($\alpha = .93$). As evidence of discriminant validity, Security scores were not significantly correlated with athletic competence ($r(69) = .19$) or GPA ($r(68) = .12$). Test-retest reliability showed good results, r

(30) = .75, when 10-12-year-olds were asked to complete the measure again after a short time interval. In the current sample, internal consistency was very good ($\alpha = .90$) for the Security Scales Father (SSF) and ($\alpha = .89$) for the Security Scale Mother (SSM).

Borderline Personality Disorder

Borderline features. The Borderline Personality Disorder Features Scale for children (BPFSC; Crick, Murray & Woods, 2005), is a 24-item self-report measure, created to examine BPD development in children from ages 9 and older, and was initially based on the Personality Assessment Inventory (PAI; Morey, 1991). In the current study, the BPFSC was used to measure BPD features. Items are rated on a 5-point Likert scale running from “not true” – “always true,” with higher scores indicating more BPD features. Chang, Sharp, and Ha (2011) established the internal consistency of the measure with a Cronbach's α of .896. In the current sample, internal consistency was good ($\alpha = .86$).

BPD Diagnosis. The Childhood Interview for DSM-IV Borderline Personality Disorder (CI-BPD; Zanarini, 2003) is a semi-structured interview, adapted from the adult version of the BPD module of the DSM-IV Diagnostic Interview for Personality Disorders, that assesses BPD in youth. The CI-BPD was used in the current study to diagnose BPD and to assign inpatient adolescents to the BPD or psychiatric control group. Each item on this measure reflects the 9 criteria required for a BPD diagnosis: inappropriate or intense anger, affective instability due to a marked reactivity of mood, chronic feelings of emptiness, identity disturbance, transient stress or severe dissociative symptoms, frantic efforts to avoid real or imagined abandonment, recurrent suicidal behaviors or self-mutilating behaviors, impulsivity that is potentially self-damaging, and patterns of unstable and intense interpersonal relationships. Items are scored as 0-absent, 1-probably present, and 2-definitely present. A diagnosis of BPD requires that 5 or more criteria be

scored as "definitely present." Sharp and colleagues (2012) the CIPBD's consistency, reliability, and validity. Inter-rater reliability analyses were conducted on 16.5% of the inpatient sample ($n = 86$) and revealed that two-way agreement between raters (0 – BPD absent or sub-threshold; 1 – BPD present; $\kappa = .696, p < .000$) was good.

Internalizing and Externalizing Psychopathology

The Youth Self Report (YSR; Achenbach & Rescorla, 2001), is a 112 item broadband self-report measure of psychopathology for youth between the ages of 11 and 18. Each item is rated on a 3-point scale ranging from 0 (not true) to 2 (very true or often true) and scoring results in eight syndrome scale scores: anxious/depressed, withdrawn/depressed, somatic complaints, social problems, thought problems, attention problems, rule-breaking behaviors, and aggressive behaviors. The first three, and last two, subscale scores are summed to create the internalizing and externalizing subscale scores, respectively. In the current study, only the internalizing and externalizing subscale scores were utilized.

Procedures

A quantitative, cross-sectional research design was used for this study. Data collection was approved by the appropriate institutional review boards. Questionnaires and clinical interviews were administered by trained research staff. Data analyses were carried out by the author and a graduate student mentor, under the guidance of the faculty mentor.

Data Analytic Plan

All data analyses were conducted using *IBM Statistical Package for the Social Sciences (SPSS)*. Before main study aims were evaluated, preliminary analyses were conducted, including bivariate correlations between all study variables. Descriptive statistics, including mean, SD, skewness, and kurtosis were calculated to determine the distribution of variables. Independent t-tests were carried out to examine gender differences on each scale of attachment. To evaluate aim 1, group comparisons were conducted to examine differences in mean levels of attachment security between adolescents with BPD ($n = 173$), psychiatric controls ($n = 348$), and health controls ($n = 297$). To determine group differences in attachment security with mothers, amongst the 3 groups, a Multiple Analysis of Variance (MANOVA) was conducted. In addition, a Multiple Analysis of Covariance (MANCOVA) was used to determine group differences in attachment security with father, controlling for adolescent gender, as a result of significant mean differences between male and female adolescents on father SSF.

To evaluate aim 2, hierarchical regression analyses were carried out to examine the incremental contribution of BPD symptoms, over and above internalizing and externalizing symptoms, in predicting attachment security. For the first model, internalizing and externalizing symptoms measured by the YSR were entered as independent variables in step 1. BPD features measured by the BPFSC were entered as an independent variable in step 2, and attachment security measured by the SSF was entered as the dependent variable. Additionally, because adolescent gender was significantly associated with attachment security in fathers, it was included as a covariate for both step 1 and 2. For model 2, internalizing and externalizing symptoms measured by the YSR were entered as independent variables in step 1, and BPD features measured by the BPFSC were entered as an independent variable in step 2, and

attachment security measured by the SSM was entered as the dependent variable. Bivariate correlations revealed that no independent variables were very highly correlated reducing concerns of multicollinearity. For each model tolerance (.81-.82) and VIF (1.22-1.23) were within acceptable limits.

Results

Preliminary analysis

Independent-samples t-tests were conducted on each measure of attachment security by gender. Significant mean differences emerged between females ($M = 2.58, SD = .73$) and males ($M = 2.74, SD = .69$) on the SSF total scale ($t(2.95) = 548.29, p < .005, d = .71$), on the perceived availability subscale ($t(3.86) = 597.15, p < .001, d = .80$) and on perceived dependability subscale ($t(2.17) = 524.86, p < .03, d = .78$), suggesting that females have significantly lower attachment security with fathers than males. In contrast, for the SSM total scale, females ($M = 2.90, SD = .69$) and males ($M = 2.93, SD = .65$) showed no significant differences ($t(1.12) = 796, p = .24, d = .68$). Similar results emerged on the perceived availability scale ($t(2.84) = 612.65, p = .06, d = .68$) and perceived dependability subscales ($t(.61) = 578.39, p = .53, d = .81$).

Next, bivariate correlations were carried out to look at relationships between the main study variables. As expected, significant correlations emerged between the BPFSC, YSR, and all attachment variables (see Table 1). Possible covariates such as age did not show any significant associations with the security scale for either mothers or fathers.

Aim 1 Group Differences

Comparison of SSF scores across BPD, psychiatric, and healthy adolescents

Since adolescent gender showed a significant association with attachment security on the SSF, a multivariate analysis of covariance (MANCOVA) was carried out to control for gender as a predictor of paternal attachment security. Even after controlling for gender, groups were statistically significantly different ($F(2,756), 10.206; p < .001$). Results from post-hoc tests showed that adolescents diagnosed with BPD scored significantly lower on the SSF total score than both the HC (healthy control) and PC (psychiatric control) groups (Table 2). The perceived availability scale results were similar, but on this that scale, there were no significant mean differences between BPD and HC adolescents. On the perceived dependency scale, there was a significant mean difference between the BPD group and the PC group ($p < .000$) and HC group ($p < .023$). HCs and PCs were significantly different from one another as well ($p < .008$).

Comparison of SSM scores across BPD, psychiatric and healthy adolescents

A multivariate analysis of variance (MANOVA) was carried out to observe group differences between the BPD, HC, and PC groups on the SSM total scores and subscale scores. Results showed a statistically significant difference across the three groups ($F(2, 795) = 25.93, p < 0.05$; Wilk's $\lambda = .918$). Follow-up Games Howell tests showed there was a significant difference between all three groups on the total scale (HC>PC>BPD; see Table 3). On the perceived availability scale, BPD adolescents had a significantly lower mean than both PC adolescents ($p < .002$) and HC adolescents ($p < .000$), but there was no significant difference between the PC and HC groups ($p = .728$). The perceived dependency scale also showed significant mean differences between the groups (HC>PC>BPD).

Aim 2 Hierarchical Regression analyses

Attachment security with father s as dependent variable. A hierarchical linear regression model was used to examine the predictive utility of BPD over and above the effects of internalizing and externalizing disorder on attachment security with fathers, with the inpatient sample. Because gender was significantly related to paternal attachment security in bivariate analyses, it was included as a covariate. In step 1 of this model internalizing and externalizing symptoms were entered as independent variables, with attachment security in fathers (measured by the SSF total score) entered as the dependent variable. In step 1, the overall model was significant ($F(3,661) = 6.980, p < .000$). Internalizing symptoms ($\beta = -.00, t = -3.320, p < .001$) showed a negative association with the outcome, and gender ($\beta = .138, t = 2.380, p < .018$) showed a positive association with attachment security in fathers.

At step 2, borderline features were added and was a significant predictor of attachment to fathers ($\beta = -.01, t = -5.94, p < .000$). The adjusted R² in step 1 was 2.6% and 7.5% in step 2, indicating a 5.0% increase in the explained variance in father attachment security, due to the addition of BPD features in the model. This change was significant ($F(1, 60) = 35.686, p < .000$).

Attachment security with the mother as dependent variable. A second hierarchical linear regression model was tested to examine the predictive utility of BPD over and above the effects of internalizing and externalizing disorder on attachment security with mothers. In step 1 of this model, internalizing and externalizing symptoms were entered as independent variables, with attachment security with mothers entered as the dependent variable. In step 1 the overall model was significant, ($F(2,698) = 21.559, p < .000$). Internalizing ($\beta = -.01, t = -3.351, p < .000$) and externalizing ($\beta = -.009, t = -3.386, p < .001$) symptoms were negatively associated with

maternal attachment. At step 2, borderline features were added and showed significance ($\beta = -.01, t = -4.860, p < .000$). The adjusted R2 value in step 2 was 5.8% and 8.5% in step 2, indicating a 3.1% change in the variance explained in maternal attachment security. This change was significant as well ($F(1,597) = 23.618, p = .000$).

Discussion

Insecure attachment has shown significant associations with BPD in previous studies. However, high levels of insecure attachment can also be found in other psychiatric disorders as it has been implicated as a vulnerability for psychopathology broadly construed. Few studies have investigated the specificity of insecure attachment in BPD above and beyond internalizing and externalizing disorders, particularly in adolescent samples. It is particularly pertinent to study this in adolescence because this developmental stage is a prime period for the onset of BPD and most other forms of psychopathology. The current study sought to address this question by examining differences in attachment among healthy adolescents and those admitted to an inpatient unit (including those with and without BPD) and examine the role of BPD symptoms in predicting attachment in the context of other psychopathology.

Regarding our first aim and consistent with our hypothesis, significant mean differences did emerge between patients with BPD and psychiatric and healthy controls. BPD patients scored lower on measures of attachment with both mothers and fathers, indicating greater attachment insecurity with both caregivers. This result is congruent with prior theory that has outlined the unique role insecure attachment plays in the etiology of BPD. Results were significant for paternal attachment even while controlling for gender as a covariate. Regarding our second aim and consistent with the hypothesis, borderline features explained additional variance in attachment (with both mothers and fathers) above and beyond internalizing and externalizing symptoms, with a 5% increase in variance explained in paternal security and a 3% increase explained in maternal security. There was also a significant negative relationship between internalizing symptoms and paternal attachment and a significant negative relationship between

internalizing and externalizing symptoms and maternal attachment. These results are consistent with Groh and colleagues' metaanalysis (2012) and Fearon et al.'s metaanalysis (2010), which showed that adolescents with high levels of internalizing and externalizing behaviors were more likely to have insecure parental attachments.

In summary, our results suggest that among adolescents ages 12-17 years old, BPD patients demonstrate significantly lower (less secure) scores on a measure of attachment security, and BPD features show predictive power in relation to attachment security, over and above internalizing and externalizing symptoms.

LIMITATIONS AND FUTURE DIRECTIONS

Although the results of the current study suggest BPD group showed higher magnitude over and above other forms of psychopathology in predicting insecure attachment, it is important to note that insecure attachment was still very relevant in the psychiatric control group. Secondly, the results do not indicate the causality of insecure attachment in the etiology of BPD as this is a correlational study. Future studies should investigate how insecure attachment might play a causal role in the etiology of BPD. Secondly, the measure of attachment utilized in this study is dimensional and does not produce categorical indications of the attachment style of participants (e.g., secure, disorganized); future studies should replicate results using gold-standard measures of attachment that result in attachment style categorizations (e.g., the Child Attachment Interview). Finally, the inpatient sample utilized in this study identified as white and upper-middle class. External factors such as ethnic/racial minority stress, low socioeconomic status, and generational stress might play a role in how adolescents report on their attachment styles or how attachment styles develop in individuals from ethnic/racial minority groups. Future

studies should conduct similar analyses in more ethnically/racially diverse samples to see if results would achieve replication

Nevertheless, this study found that insecure attachment shows uniqueness and specificity in borderline pathology, therefore making a significant contribution to literature concerning the study of etiology of BPD in adolescents and increasing our understanding of the role of insecure attachment in the development of psychopathology.

References

- Aaronson, C. J., Bender, D. S., Skodol, A. E., & Gunderson, J. G. (2006). Comparison of attachment styles in borderline personality disorder and obsessive-compulsive personality disorder. *Psychiatric Quarterly*, *77*(1), 69-80.
- Achenbach, T. M., Dumenci, L., & Rescorla, L. A. (2001). Ratings of relations between DSM-IV diagnostic categories and items of the CBCL/6-18, TRF, and YSR. *Burlington, VT: University of Vermont*, 1-9
- Agrawal, H. R., Gunderson, J., Holmes, B. M., & Lyons-Ruth, K. (2004). Attachment studies with borderline patients: A review. *Harvard review of psychiatry*, *12*(2), 94-104.
- Ainsworth, S. (85). MD, & Bell, SM (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child development*, *41*(1), 49-67.
- Ainsworth, M. D. S. (1978). Blehar MC, Waters E., Wall S. *Patterns of attachment: A psychological study of the strange situation*.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.
- Belsky, J. A. Y., & Fearon, R. P. (2002). Infant-mother attachment security, contextual risk, and early development: A moderational analysis. *Dev Psychopathol*, *14*(2), 293-310.
- Bowlby, J. (1973). Attachment and loss: Volume II: Separation, anxiety and anger. In *Attachment and Loss: Volume II: Separation, Anxiety and Anger* (pp. 1-429). London: The Hogarth Press and the Institute of Psycho-Analysis
- Chang, B., Sharp, C., & Ha, C. (2011). The criterion validity of the Borderline Personality Features Scale for Children in an adolescent inpatient setting. *Journal of Personality Disorders*, *25*(4), 492-503.

- Crick, N. R., MURRAY-CLOSE, D. I. A. N. N. A., & Woods, K. (2005). Borderline personality features in childhood: A short-term longitudinal study. *Development and psychopathology, 17*(4), 1051-1070
- Fearon, R. P., Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., Lapsley, A. M., & Roisman, G. I. (2010). The significance of insecure attachment and disorganization in the development of children's externalizing behavior: a meta-analytic study. *Child development, 81*(2), 435-456.
- Fonagy, P., Target, M., & Gergely, G. (2000). Attachment and borderline personality disorder: A theory and some evidence. *Psychiatric Clinics, 23*(1), 103-122.
- Garofalo, C., Holden, C. J., Zeigler-Hill, V., & Velotti, P. (2016). Understanding the connection between self-esteem and aggression: The mediating role of emotion dysregulation. *Aggressive Behavior, 42*, 3-15. doi:10.1002/ab.21601
- Goodall, K., Rush, R., Grunwald, L., Darling, S., & Tiliopoulos, N. (2015). Attachment as a partial mediator of the relationship between emotional abuse and schizotypy. *Psychiatry Research, 230*, 531-536. doi:10.1016/j.psychres.2015.09.050
- Goodall, K., Rush, R., Grunwald, L., Darling, S., & Tiliopoulos, N. (2015). Attachment as a partial mediator of the relationship between emotional abuse and schizotypy. *Psychiatry Research, 230*, 531-536. doi:10.1016/j.psychres.2015.09.050
- Gormley, B., & McNiel, D. E. (2010). Adult attachment orientations, depressive symptoms, anger, and self-directed aggression by psychiatric patients. *Cognitive therapy and research, 34*(3), 272-281
- Gunderson, J. G. (1996). Borderline patient's intolerance of aloneness: Insecure attachments and therapist availability. *The American journal of psychiatry.*

- Harter, S. (1982). The perceived competence scale for children. *Child development*, 87-97.
- Kaess, M., Brunner, R., & Chanen, A. (2014). Borderline personality disorder in adolescence. *Pediatrics*, 134(4), 782-793.
- Kerns, K. A., Klepac, L., & Cole, A. (1996). Security Scale. *Developmental Psychology*.
- Korver-Nieberg, N., Berry, K., Meijer, C., de Haan, L., & Ponizovsky, A. M. (2015). Associations between attachment and psychopathology dimensions in a large sample of patients with psychosis. *Psychiatry Research*, 228(1), 83-88.
- Levy, K. N., Beeney, J. E., & Temes, C. M. (2011). Attachment and its vicissitudes in borderline personality disorder. *Current psychiatry reports*, 13(1), 50-59.
- Lyons-Ruth, K., & Jacobvitz, D. (2008). Unresolved loss, relational violence, and lapses in behavioral and attentional processes. Cassidy, J., Shaver, P. R. (Hg.): *Handbook of attachment: theory, research, and clinical applications*, 5, 520-544.
- Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern.
- Mikulincer, M., & Shaver, P. R. (2012). An attachment perspective on psychopathology. *World Psychiatry*, 11(1), 11-15.
- Miljkovitch, R., Deborde, A. S., Bernier, A., Corcos, M., Speranza, M., & Pham-Scottez, A. (2018). Borderline personality disorder in adolescence as a generalization of disorganized attachment. *Frontiers in psychology*, 9, 1962.
- Morey, L. C., & Lowmaster, S. E. (2010). Personality assessment inventory. *The Corsini Encyclopedia of Psychology*, 1-4.
- Mosquera, D., Gonzalez, A., & Leeds, A. M. (2014). Early experience, structural dissociation, and emotional dysregulation in borderline personality disorder: the role of insecure and

- disorganized attachment. *Borderline personality disorder and emotion dysregulation*, 1(1), 1-8.
- Nickell, A. D., Waudby, C. J., & Trull, T. J. (2002). Attachment, parental bonding, and borderline personality disorder features in young adults. *Journal of Personality Disorders*, 16(2), 148-159.
- Sack A, Sperling MB, Fagen G, Foelsch P. Attachment style, history, and behavioral contrasts for a borderline and normal sample. *J Personal Disord* 1996;10:88–102
- Scott, L. N., Kim, Y., Nolf, K. A., Hallquist, M. N., Wright, A. G., Stepp, S. D., ... & Pilkonis, P. A. (2013). Preoccupied attachment and emotional dysregulation: specific aspects of borderline personality disorder or general dimensions of personality pathology?. *Journal of personality disorders*, 27(4), 473-495.
- Sharp, C., & Fonagy, P. (2015). Practitioner Review: Borderline personality disorder in adolescence—recent conceptualization, intervention, and implications for clinical practice. *Journal of Child Psychology and Psychiatry*, 56(12), 1266-1288.
- Sharp, C., Ha, C., Michonski, J., Venta, A., & Carbone, C. (2012). Borderline personality disorder in adolescents: evidence in support of the Childhood Interview for DSM-IV Borderline Personality Disorder in a sample of adolescent inpatients. *Comprehensive psychiatry*, 53(6), 765-774
- Shaffer, D., Fisher, P., Lucas, C. P., Dulcan, M. K., & Schwab-Stone, M. E. (2000). NIMH Diagnostic Interview Schedule for Children Version IV (NIMH DISC-IV): description, differences from previous versions, and reliability of some common diagnoses. *Journal of the American Academy of Child & Adolescent Psychiatry*, 39(1), 28-38.

- Tasca, G. A., Ritchie, K., Zachariades, F., Proulx, G., Trinneer, A., Balfour, L., ... & Bissada, H. (2013). Attachment insecurity mediates the relationship between childhood trauma and eating disorder psychopathology in a clinical sample: a structural equation model. *Child Abuse & Neglect*, 37(11), 926-933.
- Waters, E., Merrick, S., Treboux, D., Crowell, J., & Albersheim, L. (2000). Attachment security in infancy and early adulthood: A twenty-year longitudinal study. *Child development*, 71(3), 684-689.
- Zanarini, M. C. (2003). Childhood Interview for DSM-IV borderline personality disorder (CI-BPD). *Belmont, MA: McLean Hospital*

Tables

Table 1 *Correlations and descriptive statistics across main study variables*

Measure	1	2	3	4	5	6	7	8	9	10
Age	-									
BPFSC	.04	-								
SSFT	-.06	-.29**	-							
SSFPERCAVAIL	-.00	-.26**	.86**	-						
SSFPERCEDEPEND	-.10**	-.26**	.94**	.62**	-					
SSM	-.04	-.26**	.26*	.21**	.25**	-				
SSMPERCAVAIL	.04	-.26**	.25**	.31**	.17**	.81**	-			
SSMPERCDEPEND	-.09*	-.23**	.22*	.12**	.25**	.57**	.57**	-		
YSR INT	.11**	.40**	-.15**	-.11**	-.16**	-.21**	-.13	-.22**	-	
YSR EXT	.04	.36**	-.09*	-.047	-.11**	-.21**	-.15**	-.21**	.49**	-
Mean	15.22	64.44	2.63	2.86	2.48	2.89	3.24	2.67	20.04	15.27
SD	1.43	16.58	.71	.80	.78	.67	.68	.80	12.85	10.31
Skew	-.40	.10	-.14	-.47	-.09	-.45	-.96	-.39	.35	.84
Kurtosis	-.75	-.52	-.99	-.76	-1.00	-.63	.27	-.77	-.90	.51

** . Correlation is significant at the 0.01 level (2-tailed)

* . Correlation is significant at the 0.05 level (2-tailed)

Note. BPFSC: Borderline Personality Features Scale; SSFT: The Security Scale Father Youth at Admission Total Score; SSFPERCAVAIL: The Security Scale Father Perceived Availability; SSFPERCEDEPEND: The Security Scale Father Perceived Dependability; SSML: The Security Scale Mother Youth Total Score; SSMPAVAIL The Security Scale Perceived Availability; SSMPD_A1: The Security Scale Perceived Dependability. YSR INT: Youth Self Report Internalizing Raw Score. YSR EXT: Youth Self Report Externalizing Raw Score.

Table 2 SSF Group comparisons while controlling for gender (MANCOVA)

	BPD	PC	HC	<i>F(df)</i>	η^2
	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>		
SSFT	2.41 (.72)	2.64(.72)	2.75(.68)	<i>F</i> (2,753) = 9.65	.025
SSFPERCAVAIL	2.71(.82)	2.90(.79)	2.89(.80)	<i>F</i> (2,753) = 3.45	.009
SSFPERCDEPEND	2.26(.79)	2.46(.82)	2.65(.69)	<i>F</i> (2,753) =13.70	.035

Note. Covariates appearing in the model are as follows: adolescent gender (0 = female; 1 = male). SSFT: The Security Scale Father Youth at Admission Total Score; SSFPERCAVAIL: The Security Scale Father Perceived Availability; SSFPERCEDEPEND; The Security Scale Father Perceived Dependency

Table 3 SSM Group comparisons among diagnostic group (MANOVA)

	BPD	PC	HC	<i>F(df)</i>	η^2
	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(D)</i>		
SSMTOTAL	2.60(.73)	2.91(.71)	3.07(.52)	<i>F</i> (2,795) =25.93	.061
SSMPERCAVAIL	3.04(.78)	3.28(.68)	3.33(.58)	<i>F</i> (2,795) = 9.80	.024
SSMPERCDEPEND	2.31(.85)	2.67(.88)	2.90(.57)3	<i>F</i> (2,795) =29.37	.069

Notes. SSM: The Security Scale Mother Youth Total Score; SSMPERCAVAIL: The Security Scale Perceived Availability; SSMPD_A1: The Security Scale Perceived Dependency

Table 4 Hierarchical Regression predicting attachment security

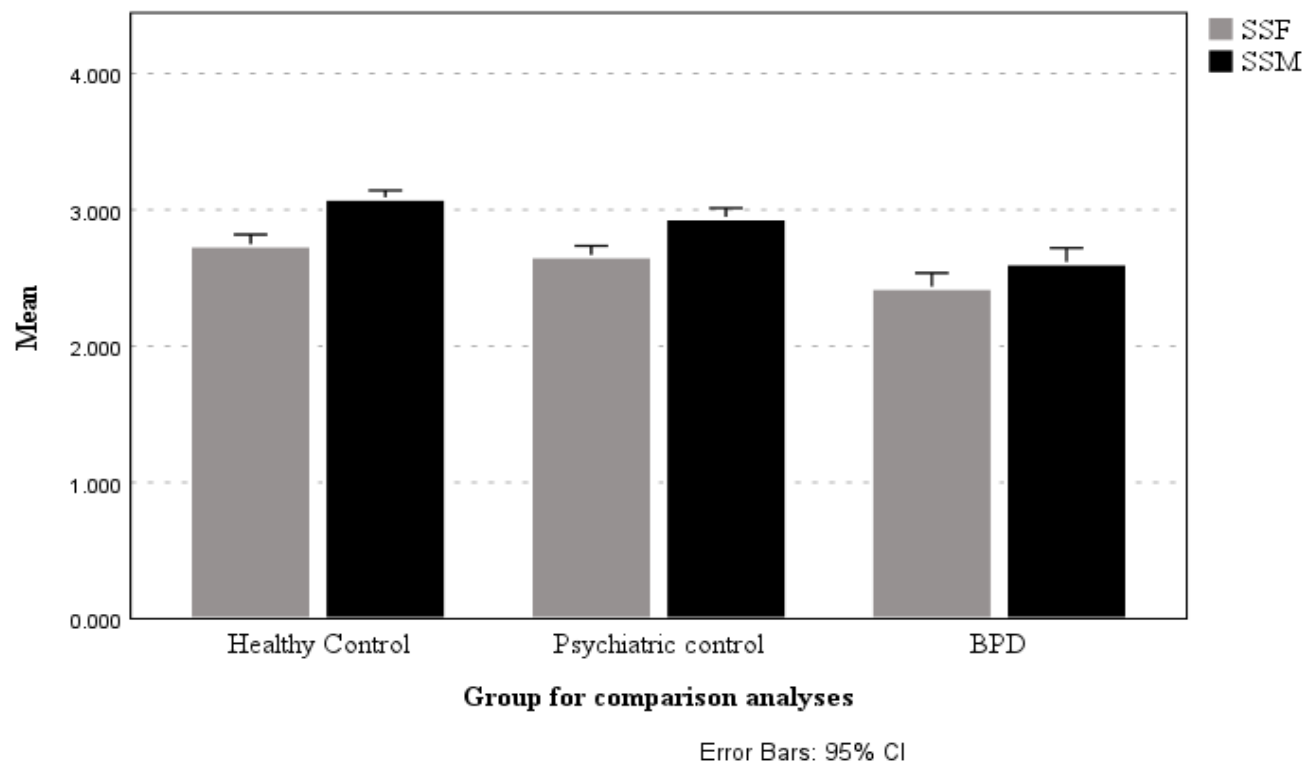
	<i>b</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	<i>Adj. R</i> ²	Δ <i>Adj. R</i> ²
DV= Security Father Total							
Step 1						.026	.031
YSR Internalizing Raw	-.008	.002	-.137	-3.125	.002		
YSR Externalizing Raw	-.001	.003	-.021	-.480	.631		
Gender	.138	.058	.091	2.380	.018		
Step 2						.075	.050
YSR Internalizing Raw	-.004	.002	-.071	-1.600	.110		
YSR Externalizing Raw	.002	.003	.033	.765	.445		
Gender	.102	.057	.068	1.768	.073		
BPFSC	-0.11	.002	-.247	-5.974	.000		
DV= Security Mother Total							
Step 1						.055	.058
YSR Internalizing Raw	-.007	.002	-.140	-3.351	.001		
YSR Externalizing Raw	-.009	.003	-.141	-3.386	.001		
Step 2						.085	.031
YSR Internalizing Raw	-.005	.002	-.087	-2.042	.041		
YSR Externalizing Raw	-.006	.003	-.099	-2.347	.019		
BPFSC	-.008	.002	-.194	-4.860	.000		

Notes. DV= Dependent Variable; BPFSC: Borderline Personality Features Scale; YSR INT: Youth Self Report Internalizing Raw Score. YSR EXT: Youth Self Report Externalizing Raw Score.

Figures

Figure 1

Mean Levels of Attachment Security Compared Amongst Groups



Note. SSF: Security Scale Father; SSM: Security Scale Mother.

