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Borderline Personality Disorder Symptoms in Fathers Predict Offspring Outcomes in Young Adulthood

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Borderline Personality Disorder Symptoms in Fathers Predict Offspring Outcomes in Young Adulthood

By

Elaine Johnson

B.A., The City College of New York, 2017

Advisor: Patricia A. Brennan, Ph.D.

An abstract of

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Abstract

Borderline Personality Disorder Symptoms in Fathers Predict Offspring Outcomes in Young Adulthood

By Elaine Johnson

Maternal Borderline Personality Disorder (BPD) symptoms have been significantly linked to internalizing and externalizing disorders in adolescents and young adults. The impact of BPD symptoms on offspring outcomes may be explained by several potential mechanisms including genetics and child temperament, parenting characteristics including high negative expressed emotion, and/or family stress and instability. The existing literature that explores these intergenerational associations and related mechanisms focuses primarily on maternal BPD symptoms with very little study of BPD symptoms in fathers as they relate to offspring psychopathology. Given the evidence that fathers play a distinctive role in their children's risk for disorders, it is of importance to understand how fathers with BPD symptoms may also impact their offspring. The proposed study was designed to fill this gap in the literature by exploring paternal BPD and associated offspring outcomes in a sample of 448 families who were followed longitudinally into young adulthood. We hypothesized that paternal BPD characteristics would predict young adult BPD, internalizing, and externalizing symptoms, and that these associations would remain significant after controlling for maternal BPD. We also hypothesized that parenting quality, family stress, and child temperament would act as mediators between paternal BPD and young adult behavioral and psychological outcomes. Finally, we explored offspring sex as a moderator of these relationships, as well as the role of comorbid psychological diagnoses in explaining the impact of paternal BPD on offspring outcomes. Our results partially supported these hypotheses. First, paternal BPD symptoms were predictive of youth BPD symptoms above and beyond maternal BPD symptoms. However, when both comorbid paternal internalizing and externalizing diagnoses were controlled, paternal BPD symptoms were no longer predictive of offspring BPD symptoms. Chronic stress was found to be a significant mediator of paternal BPD and offspring BPD, internalizing, and externalizing symptoms, while parenting quality and child temperament were not. Additionally, while sex predicted youth outcomes, it was not a significant moderator of the association between paternal BPD and young adult symptoms. Further studies are needed to explore how paternal BPD symptoms and associated risks influence the development of psychopathology in young adults.

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Introduction

Borderline Personality Disorder (BPD) is a highly disruptive mental health disorder marked by intense emotional dysregulation (American Psychiatric Association, 2000) and is known to have negative implications for the parents who struggle with it, as well as their children with whom they interact with regularly. Individuals dealing with BPD express a range of intense emotions, including rage, sorrow, shame, panic, terror, and chronic feelings of emptiness and loneliness (Lieb et al., 2004; APA, 2000). BPD is also characterized by a presentation of significantly heightened emotional sensitivity, self-injurious behavior, a decreased ability to regulate intense emotional responses, and a delayed return to a calm emotional baseline (Crowell et al., 2009). Consequently, relationships with loved ones often have detrimental outcomes (Fonagy, 2000). Borderline personality, which emerges in adolescence and young adulthood is also linked to a myriad of negative physical and socioemotional health outcomes (Powers & Oltmanns, 2013) as well as a high rate of comorbid disorders and suicide rates about 50% higher than those without BPD (Stepp et al., 2014). Understanding the association between parental BPD and child outcomes is of particular interest to researchers to inform preventative intervention tailored to improving parent and adolescent interaction and youth outcomes. (Cummings & Cicchetti, 1990; Hammen, 1992).

Parental BPD and Negative Outcomes

Providing an environment that safeguards children from the effects of BPD can be challenging for parents with this condition. Families in which one or both parents have BPD are characterized by high levels of instability, conflict, and disorganization, and low levels of cohesion and satisfaction within the family environment (Feldman et al., 1995). These factors, along with children's greater likelihood of developing unstable coping skills and an insecure

attachment style, (Stepp et al., 2012), can place the children of parents with BPD at a higher risk of experiencing BPD themselves, as well as higher risk for depression and other internalizing disorders. For instance, one study examining the effect of parental BPD on child vulnerability to depression in children between the ages of 6-14 found that offspring were at greater risk of depression even after controlling for parental symptoms of depression (Abela et al., 2005). These results suggest that these children were not more vulnerable to depression simply because their parents were more severely depressed than others, but that parental BPD conferred additional risk.

The symptoms of BPD seen in the DSM include both internalizing and externalizing behaviors (Eaton, et al., 2011) which may be due to the fact that both these types of behaviors seem to stem from the emotional dysregulation the individual experiences (Macklem, 2008). Furthermore, emotional dysregulation commonly seen in parents who have BPD is often seen in their relatives (Craighead et al., 2013) and can lend to the aforementioned conflict and disorganization seen in the home, as well as an increased risk for both internalizing and externalizing behavior problems in children. Thus, it can be hypothesized that children and adolescents of parents with BPD symptoms are more vulnerable to both internalizing and externalizing disorders, in addition to BPD, as their parents' symptoms may negatively impact their development in numerous ways.

Maternal BPD Characteristics and Offspring Outcomes

The overwhelming majority of the research literature focuses on the characteristics and parenting behaviors of mothers with BPD in relation to their offspring (Conway et al., 2015; Weiss et al., 1996; Cheng et al, 2011). The unstable personal relationships that characterize BPD stem from a tendency to deviate between idealization and devaluation of loved ones that lead to a

display of harsh and highly negative expressed emotions. (Newman, 2007). Extant literature provides a number of examples of how mothers with BPD express emotion to their offspring (Eyden, 2016; Herr, et al., 2008; Zalewksi et al, 2014). Mothers with BPD exhibit greater inconsistency in responding to their children's needs and accurately interpreting their children's affective states (Newman, 2007). They tend to fluctuate between demonstrating overinvolved, intrusive parenting or being withdrawn, and showing more avoidant and/or "cold" emotions. For example, a mother may overcontrol daily interactions and activities such that the child feels as if they have little independence as they grow up (Petfield et al., 2015).

On the other end of the spectrum, mothers with BPD have also been found to be less sensitive than mothers without BPD and to provide less structure in their interactions with their children (Stepp et al., 2012). Such decreased sensitivity may manifest as coldness, hostility, neglect and emotional invalidation. Furthermore, mothers with BPD report more neglectful and punishing responses to their child's negative emotional displays (Whalen et al., 2009). In a study further providing evidence of the fluctuation in expressed emotion, Hobson et al. (2005) explored the relationship between mothers with BPD and their 1-year old children using videotaped interactions of the "Strange Situation" paradigm. Mothers with BPD displayed dysregulated affective communication toward their offspring, including both criticism and intrusive behaviors. Such displays of emotion can subsequently result in unfavorable behavioral and mood outcomes for the children, leaving them vulnerable to the development of psychopathology later in life (Newman et al., 2007).

Maternal BPD has been associated with psychopathology in offspring during childhood, adolescence and adulthood (Eyden et al., 2016). Specifically, maternal BPD symptomatology predicts offspring internalizing problems (Abela et al., 2005; Barnow et al, 2006), externalizing

problems (Barnow et al., 2006, Bertino et al., 2012; Weiss et al., 1996; Goodman et al., 2013), and BPD symptoms (Barnow et al., 2013; Conway et al., 2015; Stepp et al., 2013; and Weiss et al., 1996). Indeed, Stepp et al., (2013) found evidence of this, showing that maternal BPD was predictive of offspring BPD symptoms at age 30 in a sample of adolescents and young adults (14-30). This consistency of findings across childhood, adolescence and adulthood suggests that the impacts of maternal BPD on offspring behavior are longstanding and clinically significant (Eyden et al., 2016).

Paternal BPD Characteristics and Offspring Outcomes

Compared to the plethora of studies on mothers with BPD, studies that have focused on fathers' borderline characteristics and the risks they may confer to their children are few and far between. Though some studies examine "parental" borderline symptoms and therefore include both mothers and fathers with BPD, the number of fathers is typically much smaller than the number of mothers in the sample. For instance, one study examining the impact of parental BPD on children's vulnerability to depression used a sample that included 88 mothers and 14 fathers. The authors concluded that children of parents who had BPD alone or BPD and comorbid major depression experienced more internalizing symptoms. However, the impact of paternal BPD was difficult to discern, as mothers dominated the BPD risk group (Abela et al., 2005). This exemplifies the issue at hand as fathers who have BPD and other mental illnesses have generally been neglected in the developmental literature targeting offspring outcomes (Styron et al., 2002).

Although studies of mothers with BPD vastly outnumber those of fathers with BPD, more recent research has shown that men and women have been found to experience and be disabled by BPD at similar rates (Sansone & Sansone, 2011), making the underrepresentation of fathers in research particularly puzzling. In a study examining the prevalence, disability, and comorbidity

of DSM-IV Borderline Personality Disorder, results from in person interviews with 34,653 adults show that there were no differences in prevalence rates of BPD in men (5.6% with a 99% confidence interval of 5.0–6.2) versus women (6.2% with a 99% confidence interval of 5.6–6.9) (Grant et al., 2008). These findings of similar prevalence rates for BPD in men and women suggest that the magnitude of the effect of fathers with BPD on their offspring may be similar to that of mothers with BPD, and that this possibility warrants further exploration.

Due to the wide array of identified BPD symptoms within the DSM, it is possible to have 126 different combinations and presentations of this disorder (Craighead et al., 2013). It is thus unsurprising that researchers have identified some gender differences in the behaviors of men and women with BPD. Studies exploring gender differences have found that men with BPD abuse more substances than women with BPD (Sansone & Sansone, 2011). They are also more likely to have explosive temperaments, comorbid antisocial personality disorder, and higher levels of novelty seeking behaviors such as impulsive decision making (Sansone & Sansone, 2011). In contrast, women with BPD do not have high levels of novelty seeking behaviors, instead they engage more in harm avoidance, a personality trait that involves worrying, pessimism and fear. Subsequently, women with BPD are more likely to present with comorbid eating, mood, anxiety, and posttraumatic stress disorders. Further studies also suggest that men with BPD present more passive aggressive and dissociative behaviors than women with BPD (Johnson, et al., 2003).

Overall, the literature posits that men with BPD appear to present more characteristics associated with externalizing behaviors while women with BPD present more characteristics associated with internalizing disorders. Thus, it might be possible that men are just as likely to have BPD but may not be *diagnosed* with it because of comorbid externalizing behaviors

(Silberschmidt et al., 2015). When studying paternal impact on offspring outcomes it might be hard to disentangle comorbid psychopathology as it could be overlapping with the fathers presentation of BPD. These issues with diagnostic accuracy also suggest that self-reports of BPD symptoms may be more valid measures in fathers, compared to relying on medical or treatment records to ascertain diagnostic status.

Given the identified differences in symptom presentation across males and females with BPD, it is important to consider how these behavioral variations impact parenting and child outcomes. It is possible that BPD in fathers might impact a child in different ways than mothers, due to the fact that they might express emotion differently. Initially, the parenting literature on fathers focused on their absence vs presence in their children's lives. However, more attention has recently been given to the direct role that fathers play in their offspring's lives. Researchers are now targeting the fathers' involvement, interaction, and attachment to provide a more comprehensive picture of how quantity and quality of the father-child relationship impacts the child (Cabrera, 2020). Recent studies note that fathers who engaged more with their children developed stronger relationships with them, regardless of the quality of the mother-child relationship (Volling & Cabrera 2019). Additionally, researchers have found that fathers' support and responsive expressed emotion is significantly predictive of their children' self-regulation and lower anxiety levels (Cabrera et al., 2007). Notably, on the other hand, negative parenting and intrusive behavior on the part of fathers predicted more aggressive and externalizing behaviors (Volling & Cabrera 2019) and less positive coping behaviors in children (McDowell & Parke 2005), above and beyond the effects of maternal negative parenting practices (Volling & Cabrera 2019).

To date, one qualitative study has focused specifically on the experiences of fathers with BPD separate from maternal BPD. Analysis of interviews with 8 fathers with BPD revealed common themes in their experiences, with some fathers reporting more interpersonal issues resulting from childhood trauma that affected their emotional regulation and subsequently how they interacted with their children (Lumsden et al, 2018). Furthermore, no empirical studies have examined the impact of paternal BPD characteristics and expressed emotion on adolescent and young adult outcomes. If sex differences in parenting characteristics result in associations with differing adolescent psychopathologies (i.e., internalizing vs externalizing disorders), this information might inform specifically targeted intervention studies and treatment protocols for high-risk adolescents and young adults.

Mechanisms of Intergenerational Transmission

While the causes of BPD are not fully understood, substantial support for the intergenerational transmission of BPD from parents to offspring exists. Genetic risk is one factor that has been shown to underlie the development of BPD (Lieb et al,, 2004), which is consistent with Marsha Linehan's Biosocial theory that the disorder develops as a result of genetic vulnerabilities in combination with environmental triggers (Crowell et al., 2009; Linehan, et al., 1999). Studies have also shown that this genetic influence does not differ between men and women. For instance, one study aggregating BPD data across twins in three countries found heritability rates of 42% for BPD features across genders (Distel et al., 2008). Another study found that the prevalence of BPD in the relatives of those with BPD ranged from 0.8%to 24.9% highlighting the increased risk of BPD in these individuals compared to those whose relatives did not have BPD, and compared to the general population (1 – 6%) (White, 2003).

Relatedly, child temperament is also heritable and previous research supports a strong familial association of core features of BPD such as affective instability and impulsivity (Silverman et al., 1991). This suggests that parents with BPD may pass down personality traits that confer risk for emotion dysregulation. Emotionally dysregulated children tend to be easily upset, frustrated and difficult to soothe (Rubin et al.,1995). This inherited temperamental disposition combined with parental displays of hostility, criticism, and other harsh emotions (Lerner, 1993) can make the reciprocal relationship between parents and children difficult and strained. The current study will examine child temperament as one potential mechanism linking fathers' BPD symptoms and negative offspring outcomes in the transition to adulthood.

In addition to biological vulnerability, dysregulated parenting practices are another mechanism that likely increases the risk for BPD traits and other negative behavioral outcomes in children. Just as parenting problems may be one mechanism by which children of mothers with BPD are at increased risk (Eyden et al., 2016; Stepp et al., 2012; Whalen et al., 2009), similar mechanisms may explain the increased risk of negative behavioral outcomes associated with paternal BPD. The proposed study will assess father's expressed emotion toward his child, a relevant parenting quality and potential mechanism for the transmission of risk between paternal BPD and offspring behavioral outcomes.

The negative impacts of paternal BPD on offspring outcomes may also stem from offspring exposure to disorganized, high stress, and abusive family environments. Previous studies using the current sample identified an association between maternal BPD symptoms and chronic family stress reported by adolescent offspring (Herr et al., 2008). Conway et al. (2015) also found that chronic family stress in adolescence predicted self-reported BPD symptoms in early adulthood. Taken together, these findings suggest that family stress serves as a potential

mechanism underlying the association between maternal BPD and offspring psychopathology in young adulthood. The current study will examine whether family stress plays a similar mediating role in the association between paternal BPD and offspring psychopathology.

The Present Study

The present study aims to address the lack of research on paternal BPD by examining the associations between maternal and paternal self-reported BPD symptoms as predictors of offspring outcomes during the transition to young adulthood, a time of high risk for the development of both internalizing and externalizing symptoms (Powers & Oltmanns, 2013; Thompson & Leadbeater 2013). Similar to what has been noted in maternal BPD studies, the present study posits that paternal BPD symptoms will be strongly related to the development of BPD symptoms, as well as both internalizing and externalizing disorders in offspring in young adulthood. Child temperament, negative parenting practices and higher levels of chronic family stress are hypothesized to be mediators of these intergenerational risk processes. Because men and women with BPD symptoms often have different patterns of comorbid psychopathology and different risk factors for BPD, we will also explore whether child biological sex might moderate the relationships between paternal BPD symptoms and negative offspring outcomes. Importantly, previous studies suggest that controlling for comorbid maternal psychopathology reduced the effect of maternal BPD symptoms on offspring BPD, suggesting that comorbidity may be an important consideration when studying the intergenerational transmission of BPD (Conway et al., 2015). Therefore, the current study will explore the relative impacts of paternal BPD, in predicting offspring psychopathology in young adulthood when controlling for comorbid internalizing and externalizing disorders. Our specific aims and hypotheses are as follows:

Aim 1: Examine the relative predictive ability of paternal BPD traits versus maternal BPD traits to predict adolescent and young adult outcomes. *Hypothesis 1a*: Fathers' BPD symptoms will be significantly associated with greater externalizing behaviors, internalizing behaviors, and higher levels of borderline personality traits in young adulthood. *Hypothesis 1b*: These associations will remain significant even after controlling for maternal BPD symptoms.

Aim 2: Examine factors that might mediate the relationship between fathers' borderline symptoms and negative outcomes in young adulthood. *Hypothesis 2a*: Paternal BPD symptoms will significantly predict negative child temperament, high expressed emotion, and high family stress. *Hypothesis 2b*: Negative child temperament, high expressed emotion, and high family stress will mediate the relationship between paternal BPD and offspring outcomes.

Aim 3: Explore sex of the child as a potential moderator of the association between paternal BPD and offspring psychopathology, as well as the role of comorbid psychopathology in fathers with BPD in predicting offspring outcomes during the transition to adulthood.

Hypothesis 3a: Offspring sex will moderate the relationship between paternal BPD symptoms and offspring internalizing, externalizing, and BPD symptoms. *Hypothesis 3b:* Controlling for comorbid psychopathology will reduce the predictive effect of paternal BPD on offspring outcomes.

Materials and Methods

Participants

Participants were father-mother-offspring triads drawn from a longitudinal birth cohort (N = 7,775) of families with children born between 1981 and 1984 at the Mater Misericordiae Mother's Hospital in Brisbane, Queensland, Australia (MUSP; Conway et al., 2015). When the

children in this cohort were 15 years of age, a subsample of 815 families (overselected for mothers reporting high levels of depressive symptoms) completed questionnaires and interviews that included the mother, father, and child. A further follow-up of these of families was undertaken when the offspring were 20 years of age. The final sample consisted of 448 triads who had the requisite data needed for study analyses. Of the fathers in the sample, 393 were the biological parent of the adolescent, 50 were stepfathers, and five identified as "other". The cohort was predominantly Caucasian (92%). The remaining 8% of the sample comprised ethnicities such as Asian (4%), Aboriginal (2%), and Pacific Islander (2%). The median maternal education level was grade ten which is the equivalent of a United States high school degree. The median family income ranged between Australian middle- and working-class socioeconomic status. Full details of the subsample selection can be found in Hammen & Brennan (2001).

Measures

Maternal and Paternal Borderline Personality Disorder Symptoms. BPD symptoms were assessed in both mothers and fathers using the personality disorders section of the Structured Clinical Interview for DSM—III-R, Patient Version (SCID-Q; Spitzer, Williams, Gibbon, & First, 1990) when the children were 15 years old. The BPD subscale consists of 13 "yes or no" questions corresponding with the eight BPD criteria in the DSM-III-R. The subscale has been shown to have a Kuder Richardson-20 value of .75 indicating good internal consistency and a test-retest reliability at a one-year follow-up (Ball et al, 2001). The items from this questionnaire are provided in Figure 1.

Parent Axis I Disorders. The presence of past and current Axis I diagnoses in the mothers and fathers in the sample was assessed using the Structured Clinical Interview for DSM-IV (SCID-IV; First et al., 1995). This assessment was conducted when their children were 15

years old. Inter-rater reliability analyses yielded weighted values of .87 for current diagnoses of Major Depressive Disorder, Dysthymic Disorder, or sub-syndromal depression and .84 for past diagnoses. Maternal depressive diagnoses (lifetime) were tested as potential confounds in this study, given the high-risk nature of the sample. In addition, composite measures of paternal internalizing (anxiety and depression) and externalizing (antisocial and substance use) diagnoses (yes/no lifetime) were examined to assess the role of comorbidity in the impact of paternal BPD on child psychopathology.

Chronic Family Stress. The semi-structured Life Stress Interview was administered to assess chronic stress and family dynamics (LSI; Hammen et al., 2000). This interview was administered by trained interviewers and consisted of six domains: social life, close friendship, romantic relationships, academic performance, school behavior, and relations with family members. Interviewers rated the offspring's description of chronic stress in the Family domain on a 1 to 5 scale. A score of 1 signifies superior functioning while a score of 5 indicates severe difficulties. Interrater reliability was .84. The LSI chronic stress ratings demonstrate good reliability, predictive validity, and concurrent validity and have been widely used (Daley et al., 2000; Phillips et al, 2005).

Fathers' expressed emotion. Fathers completed the Five- Minute-Speech Sample (FMSS; Magana et al., 1986), which provides a measure of parental attitudes toward the child that may be represented as high or low expressed emotion. In the FMSS, fathers spoke into a voice recorder for five minutes about their child or stepchild and how they get along together without a prompt from the interviewer. Recordings were later coded to assess levels of expressed emotion (emotional overinvolvement and criticism) made by the father about the child. The use

of this scale has been supported as reliable and valid (Magaña et al.,1986). Coders were trained to reliability standards by the creator of the FMSS, Ana Magaña-Amato.

Child Temperament. Mothers completed a questionnaire about their infant's behavior at the six-month follow-up, including several items reflecting infant temperament (fussiness, feeding problems, colic, etc.; $\alpha = .62$; Brennan et al., 2003).

Youth BPD Symptoms. Youth BPD symptoms were first assessed through the completion of the SCID-II self-report questionnaire which screens for all personality disorders, including BPD criteria. Interviewers then completed a follow-up interview that queried the items that participants had endorsed on the self-report form using The Structured Clinical Interview for *DSM- IV* Axis II Personality Disorders, Version 2.0 (SCID-II, First, et al., 1994). The SCID-II interview includes a dimensional and categorical assessment of BPD (i.e., diagnosis is present if at least five of nine criteria are met). The SCID-II instrument is widely used within studies on personality disorders. It also has good convergent validity with other semi-structured interviews (Crawford et al., 2005). In the current study, offspring BPD was operationalized as the number of BPD symptoms that the youth qualified for on the SCID-II interview.

Youth Internalizing and Externalizing Behavior Outcomes. Youth internalizing and externalizing behaviors were assessed using the Young Adult Behavior Checklist at age 20 (Achenbach, 1997) which includes 118 items indicating the presence of social emotional or behavioral problems. These problems are grouped into either internalizing or externalizing behaviors. Internalizing problems include those that are primarily within the self, such as anxiety, depression, and somatic complaints without apparent physical causes. Externalizing problems, by contrast, include those that involve conflict with other people, such as fighting, attacking people, lying, and stealing (Smith et al., 2014). Each item is rated on a 0-1-2-point

scale, based on behavior during the preceding six months. This measure has been used widely due to its high reliability and validity (YABCL; Achenbach, 1997).

Results

Descriptive Statistics & Exploratory Correlations

Table 1 displays descriptive statistics for the study variables in the current sample. Demographic variables such as parental education, income, marital status and child sex were also tested in the analyses to assess for potential confounding effects on young adult outcomes. Parental education was not significantly associated with any offspring outcomes, but both paternal and maternal income variables were significantly associated with offspring internalizing symptoms. Offspring biological sex was significantly associated with offspring internalizing symptoms (ΔR^2=0.035, t=3.84, p=0.001) and externalizing symptoms (ΔR^2=0.028, t=-3.56, p=0.001). However, it was not a significant predictor of borderline personality symptoms (ΔR^2=0.004, t=1.39, p=0.166).

Table 2 displays all bivariate correlations for the study variables. Within the bivariate correlations, initial results showed that paternal BPD symptoms were significantly associated with offspring BPD and internalizing symptoms but not with offspring externalizing symptoms. Maternal BPD symptoms were significantly associated with offspring externalizing and internalizing symptoms but not with offspring BPD symptoms. Additionally, lifetime history of maternal depressive disorders was significantly associated with both offspring BPD and externalizing symptoms, but interestingly, not with offspring self-reported internalizing symptoms.

Data Analytic Plan

The primary goal of the statistical analysis was to estimate the predictive ability of paternal BPD symptoms to young adult internalizing, externalizing, and BPD outcomes. Regression analyses were used to test the first hypothesis, with potential confounds added as covariates (maternal BPD, sex, maternal depression). First, fathers' BPD symptoms were assessed in a negative binomial regression predicting offspring BPD symptoms at age 20. Youth internalizing and externalizing symptoms were then log transformed so that the data would fit the assumptions of linear regression. Linear regression analyses were completed to examine whether fathers' BPD symptoms predicted these youth outcomes.

To test hypotheses related to the second study aim, bivariate correlations were examined between paternal BPD symptoms and paternal expressed emotion, chronic family stress, and child temperament Mediator analyses were also conducted using the PROCESS Macro in SPSS to examine the indirect effect of paternal BPD symptoms on offspring outcomes. Finally, to explore aim three, sex was examined as a moderator of the relationship between paternal BPD and young adult outcomes. Next, regressions were conducted to analyze whether paternal comorbid psychopathology impacted the associations between paternal BPD and offspring psychopathology.

Hypothesis Testing

Paternal BPD symptoms

Hypothesis 1a: We predicted significant associations between paternal BPD and young adult BPD, internalizing, and externalizing symptoms. Results showed that fathers' BPD symptoms were positively associated with BPD symptoms in offspring at age 20 (b=.114, SE=.04, p=0.005). Fathers' BPD symptoms were also positively associated with internalizing symptoms in offspring at age 20 (ΔR^2=0.013, t=2.34, p=0.02). However, fathers' BPD symptoms

(controlling for offspring sex) were not significantly associated with offspring externalizing symptoms at age 20 (ΔR^2=0.007, t=1.66, *p*=0.098).

Hypothesis 1b: Notably, fathers' BPD symptoms still significantly predicted offspring BPD symptoms at age 20 even after controlling for mothers' BPD symptoms (*b*=.123, SE=.041, *p*=0.003). When maternal BPD was controlled for, paternal BPD also remained a significant predictor of internalizing symptoms at age 20 (ΔR^2=0.011, t=2.146, *p*=0.032). Finally, linear regression analyses showed that when maternal BPD symptoms were controlled, paternal BPD remained a nonsignificant predictor of offspring externalizing symptoms at age 20 (ΔR^2=0.005, t=1.49, *p*=0.136).

Paternal BPD and Potential Mediator Variables in Predicting Youth Outcomes

Of the three potential mediator variables, chronic stress alone was significantly associated with father's BPD symptoms (*r* = .11, p = <.05). Further analyses showed that chronic stress was a significant mediator of the relationship between paternal BPD and young adult BPD symptoms. Chronic stress also had a significant mediating effect on paternal BPD predicting young adult externalizing symptoms and internalizing symptoms, even after statistically controlling for maternal BPD symptoms (see Tables 3 and 4).

Exploratory Sex & Comorbidity Analyses

Results showed that youth sex did not interact significantly with paternal BPD to predict any young adult outcomes, suggesting that sex does not moderate the relationship between parent and offspring symptoms (see table 5). When controlling for paternal internalizing disorders, paternal BPD was still significantly associated with offspring BPD symptoms (ΔR^2=0.01, t=2.07, *p*=0.039). When controlling for only externalizing disorders, paternal BPD was also still significantly associated with offspring BPD symptoms (*b*=.082, SE=.037, p=.028). However,

when controlling for both paternal internalizing and externalizing disorders at the same time, results showed that paternal borderline symptoms were no longer significant in predicting youth BPD symptoms (*b*=.076, SE=.047, *p*=0.108). Further analyses also showed that when both parents' externalizing and internalizing disorders were controlled, paternal BPD was not significantly associated with externalizing symptoms (ΔR^2=0.001, t=.783, *p*=0.434) or internalizing symptoms at age 20 (ΔR^2=0.004, t=1.26, *p*=0.209)

Discussion

The current study uniquely examined associations between paternal BPD symptoms and young adult BPD, internalizing, and externalizing symptoms in a large cohort of 448 father-mother-offspring triads. Previous studies have focused only on the impacts of maternal BPD on young adult outcomes with little to no focus on fathers. This study utilizes the largest sample to date to explore the predictive ability of paternal BPD symptoms on offspring psychopathology. Our findings suggest that paternal BPD symptoms predict the development of BPD and internalizing symptomatology in 20-year-old young adults. This finding persisted even when controlling for relevant covariates – most notably, maternal BPD symptoms. Because the majority of the literature on BPD outcomes references maternal BPD as a significant predictor of youth outcomes, these results highlight that paternal BPD symptoms might be just as impactful, if not more impactful, than maternal BPD in predicting young adult outcomes.

Contrary to our predictions, paternal BPD symptoms were not a significant predictor of young adult externalizing symptoms. These results were surprising in light of evidence that men with BPD have been found to display more externalizing behaviors. It was hypothesized that they would then in turn, model more externalizing behaviors for their offspring. Instead, it might

be possible that fathers lend more to the internalizing behaviors seen in their at-risk offspring via the chronic stress that their symptoms impart to the family.

Due to the principle of equifinality, these youth outcomes might not be specific to paternal BPD, as fathers may experience comorbid psychopathology, such as depression and other internalizing/externalizing disorders which negatively impacts their offspring. Extant literature has showed that when controlling for maternal comorbid psychopathology, the effects of maternal BPD were reduced (Conway et al., 2015). Our results showed the same for fathers. When controlling for both comorbid internalizing and externalizing disorders, paternal BPD was no longer a significant predictor of young adult BPD symptoms. However, when controlling for *only* paternal internalizing disorders or *only* externalizing symptomatology, paternal BPD was still significantly associated with offspring BPD symptoms suggesting that it is possible that maladaptive external and internal behaviors might both be at play in predicting offspring BPD. Furthermore, it could be argued that controlling for both is statistical overcontrol, given that BPD symptoms are known to reflect both internalizing and externalizing problems, and/or may reflect a shared underlying phenotype such as emotion dysregulation.

Mechanisms of Transmission

Notably, chronic stress was the only significant factor that acted as a mediator between paternal BPD and young adult outcomes. This indirect association was significant even when controlling for maternal BPD symptoms. Exposure to chronic family stress has previously been shown to have detrimental effects on youth development (Evans & Kim, 2013). Specifically, maladaptive family interaction and dysregulation have been associated with the development of BPD and unfavorable interpersonal behaviors (Feldman et al., 1995). While we are seeing this effect, further study would be helpful in identify in the exact ways in which fathers with BPD are

interacting with their family members and are increasing chronic family stress to negatively influence child development.

Interestingly, expressed emotion and temperament did not act as mediators as hypothesized. Chronic stress within the home included the assessment of family dynamics. Thus, it might be that while expressed emotion or temperament on their own might not act as significant mediators, they both still play a role in the overall stress experienced within the family. Because genetics may play a role in transmission of BPD, we also explored whether excluding stepfathers from the temperament analyses changed our findings—it did not. Our measure of temperament was based on a short questionnaire that the mother completed during infancy, rather than a standardized assessment. Therefore, our nonsignificant results regarding temperament may have resulted from methodological limitations in this study.

Additionally, it is notable that while extant literature states that maternal emotion expression is of great impact to young adult outcomes (Zalewski, M. et al., 2014), it may be that different types of parenting behaviors are more impactful when displayed by fathers. Relationships within the home are essential aspects of a child's development (Finn & England, 1995) and while more research is still needed to understand how the quality of the father-child relationship and fathers' expressed emotion influence young adult outcomes, more recent findings posit that the strength of the father-child relationship is a protective factor for adolescent outcomes. Bronte-Tinkew et al., (2006) found that a positive father and child relationship yielded lower delinquency and substance use behavior, particularly in cases where the father practiced an authoritative parenting style. It is important to continue to explore a variety of parenting styles that might act as mediators between paternal BPD and offspring outcomes.

Although paternal BPD was predictive of offspring BPD, offspring biological sex was not significantly associated with young adult BDP symptoms. Despite previous beliefs that women experience BPD at higher rates than men, our results are consistent with recent findings that men and women experience symptoms of BPD at similar rates, although there may be differences in the way BPD symptoms present. Furthermore, sex did not act as a moderator in this study, suggesting that both male and female children are similarly vulnerable to the impacts of paternal BPD.

Strengths & Limitations

This study is one of few to examine paternal, rather than maternal BPD symptoms in relation to offspring outcomes. Our findings advance the understanding of the roles fathers with BPD play within their families and the impact of their symptoms on their children. A notable strength of this study was the extended follow-up and the examination of offspring outcomes at 20 years old, an incredibly important developmental transitional time point during which youth become autonomous as they move away from home, make decisions on their own, and form new relationships in college and other workplaces. In light of this, the presence of paternal BPD may significantly alter their formative experiences.

Another strength of this study was that it included clinician ratings as well as self- reports from fathers and children, lessening the problems associated with single-reporter bias. Nevertheless, this study did have a few notable limitations. For instance, there were not enough youth in the sample who met the diagnostic criteria for borderline personality disorder, impairing our ability to examine these diagnostic outcomes. Additionally, as noted above our temperament scale was limited to infancy and did not account for changes in temperament as the children grew older. Furthermore, while our sample was large, the participants were all from Australia, and

were predominantly Caucasian (91%), reducing the ability for these findings to be generalized to fathers of other ethnicities and cultures.

Conclusions

This study contributes to our understanding of paternal factors that shape the development of young adults; an area that has been largely underrepresented within the BPD literature. These results highlight the impact of paternal BPD symptoms within the family system on young adult outcomes, demonstrating that paternal BPD is associated directly or indirectly with youth BPD, externalizing and internalizing symptoms. This suggests further research on paternal roles within the family context as well as the implementation of clinical interventions targeting paternal symptomatology for high-risk families which may help to prevent unfavorable outcomes in their at-risk offspring.

References

Abela JR, Skitch SA, Auerbach RP, Adams P. The impact of parental borderline personality disorder on vulnerability to depression in children of affectively ill parents. Journal of Personality Disorders. 2005 Feb 1;19(1):68-83.

Achenbach, T. M. (1997). *Manual for the young adult self-report and young adult behavior checklist*. University of Vermont, Department of Psychiatry.

American Psychiatric Association. (2000). *Diagnostic criteria from dsM-iV-tr*. American Psychiatric Pub.

Ball, S. A., Rounsaville, B. J., Tennen, H., & Kranzler, H. R. (2001). Reliability of personality disorder symptoms and personality traits in substance-dependent inpatients. *Journal of abnormal psychology*, *110*(2), 341.

Barnow, S., Aldinger, M., Arens, E. A., Ulrich, I., Spitzer, C., Grabe, H. J., & Stopsack, M. (2013). Maternal transmission of borderline personality disorder symptoms in the community-based Greifswald Family Study. *Journal of Personality Disorders*, *27*(6), 806-819.

Barnow, S., Spitzer, C., Grabe, H. J., Kessler, C., & Freyberger, H. J. (2006). Individual characteristics, familial experience, and psychopathology in children of mothers with borderline personality disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, *45*(8), 965-972.

Bertino, M. D., Connell, G., & Lewis, A. J. (2012). The association between parental personality patterns and internalising and externalising behaviour problems in children and adolescents. *Clinical psychologist*, *16*(3), 110-117.

Brennan, P. A., Hall, J., Bor, W., Najman, J. M., & Williams, G. (2003). Integrating biological and social processes in relation to early-onset persistent aggression in boys and girls. *Developmental psychology*, *39*(2), 309.

Brennan, P. A., Hammen, C., Katz, A. R., & Le Brocque, R. M. (2002). Maternal depression, paternal psychopathology, and adolescent diagnostic outcomes. *Journal of consulting and clinical psychology*, *70*(5), 1075.

Bronte-Tinkew, J., Moore, K. A., & Carrano, J. (2006). The father-child relationship, parenting styles, and adolescent risk behaviors in intact families. *Journal of family issues*, *27*(6), 850-881.

Cabrera, N.J., (2020) Father involvement, father-child relationship, and attachment in the early years, Attachment & Human Development, 22:1, 134-138, DOI: 10.1080/14616734.2019.1589070

Cabrera, N. J., Shannon, J. D., & Tamis-LeMonda, C. (2007). Fathers' influence on their children's cognitive and emotional development: From toddlers to pre-K. *Applied Development Science*, *11*(4), 208-213.

Cheng, H. G., Huang, Y., Liu, Z., & Liu, B. (2011). Associations linking parenting styles and offspring personality disorder are moderated by parental personality disorder, evidence from China. *Psychiatry research*, *189*(1), 105-109.

Conway, C., Hammen, C., & Brennan, P. (2012). A comparison of latent class, latent trait, and factor mixture models of DSM-IV borderline personality disorder criteria in a community setting: Implications for DSM-5. *Journal of Personality Disorders*, *26*(5), 793-803.

Conway, C. C., Hammen, C., & Brennan, P. A. (2015). Adolescent precursors of adult borderline personality pathology in a high-risk community sample. *Journal of personality disorders*, *29*(3), 316-333.

Craighead, W. E., Miklowitz, D. J., & Craighead, L. W. (2013). *Psychopathology: History, diagnosis, and empirical foundations*. John Wiley & Sons.

Crawford, T. N., Cohen, P., Johnson, J. G., Kasen, S., First, M. B., Gordon, K., & Brook, J. S. (2005). Self-reported personality disorder in the children in the community sample: convergent and prospective validity in late adolescence and adulthood. *Journal of Personality Disorders*, *19*(1), 30-52.

Crowell, S. E., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending linehan's theory. *Psychological bulletin*, *135*(3), 495.

Cummings, E. M., & Cicchetti, D. (1990). Attachment, depression, and the transmission of depression. *Attachment during the preschool years*, 339-372.

Daley, S. E., Burge, D., & Hammen, C. (2000). Borderline personality disorder symptoms as predictors of 4-year romantic relationship dysfunction in young women: Addressing issues of specificity. *Journal of Abnormal Psychology*, *109*(3), 451.

Distel, M. A., Trull, T. J., Derom, C. A., Thiery, E. W., Grimmer, M. A., Martin, N. G., ... & Boomsma, D. I. (2008). Heritability of borderline personality disorder features is similar across three countries. *Psychological Medicine*, *38*(9), 1219-1229.

Eaton, N. R., Krueger, R. F., Keyes, K. M., Skodol, A. E., Markon, K. E., Grant, B. F., & Hasin, D. S. (2011). Borderline personality disorder co-morbidity: relationship to the

internalizing–externalizing structure of common mental disorders. *Psychological medicine*, *41*(5), 1041-1050.

Evans, G. W., & Kim, P. (2013). Childhood poverty, chronic stress, self-regulation, and coping. *Child development perspectives*, *7*(1), 43-48.

Eyden J, Winsper C, Wolke D, Broome MR, MacCallum F. A systematic review of the parenting and outcomes experienced by offspring of mothers with borderline personality pathology: potential mechanisms and clinical implications. Clinical psychology review. 2016 Jul 1;47:85-105.

Feldman, R. B., Zelkowitz, P., Weiss, M., Vogel, J., Heyman, M., & Paris, J. (1995). A comparison of the families of mothers with borderline and nonborderline personality disorders. *Comprehensive Psychiatry*, *36*(2), 157-163.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. (1995). The structured clinical interview for DSM-III-R personality disorders (SCID-II). Part I: Description. *Journal of Personality disorders*, *9*(2), 83-91.

Fonagy, P. (2000). Attachment and borderline personality disorder. *Journal of the american psychoanalytic association*, *48*(4), 1129-1146.

Goodman, G., Bartlett, R. C., & Stroh, M. (2013). Mothers' borderline features and children's disorganized attachment representations as predictors of children's externalizing behavior. *Psychoanalytic Psychology*, *30*(1), 16.

Grant, B. F., Chou, S. P., Goldstein, R. B., Huang, B., Stinson, F. S., Saha, T. D., ... & Ruan, W. J. (2008). Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. *The Journal of clinical psychiatry*, *69*(4), 533.

Hammen, C. (1992). Cognitive, life stress, and interpersonal approaches to a developmental psychopathology model of depression. *Development and Psychopathology*, *4*(1), 189-206.

Hammen, C., Henry, R., & Daley, S. E. (2000). Depression and sensitization to stressors among young women as a function of childhood adversity. *Journal of consulting and clinical psychology*, *68*(5), 782.

Helgeland MI, Torgersen S. Developmental antecedents of borderline personality disorder. Comprehensive Psychiatry. 2004;45:138–147. [PubMed]

Herr, N. R., Hammen, C., & Brennan, P. A. (2008). Maternal borderline personality disorder symptoms and adolescent psychosocial functioning. *Journal of Personality Disorders*, *22*(5), 451-465.

Hobson, R. P., Patrick, M., Crandell, L., GARCÍA–PÉREZ, R. O. S. A., & Lee, A. (2005). Personal relatedness and attachment in infants of mothers with borderline personality disorder. *Development and Psychopathology*, *17*(2), 329-347.

Johnson, D. M., Shea, M. T., Yen, S., Battle, C. L., Zlotnick, C., Sanislow, C. A., ... & Gunderson, J. G. (2003). Gender differences in borderline personality disorder: Findings from the Collaborative Longitudinal Personality Disorders Study. *Comprehensive Psychiatry*, *44*(4), 284-292.

Lerner, J. V. (1993). The influence of child temperamental characteristics on parent behaviors. *Parenting: An ecological perspective*, 101-120.

Lieb, K., Zanarini, M. C., Schmahl, C., Linehan, M. M., & Bohus, M. (2004). Borderline personality disorder. *The Lancet*, *364*(9432), 453-461.

Linehan, M. M., Schmidt III, H., Dimeff, L. A., Craft, J. C., Kanter, J., & Comtois, K. A. (1999).

Dialectical behavior therapy for patients with borderline personality disorder and drug-dependence. *The American journal on addictions*, *8*(4), 279-292.

Lumsden V, Kerr S, Feigenbaum J. 'It makes me not worthy to be a father from time to time': the experiences of fathers with a diagnosis of borderline personality disorder. Journal of Family Studies. 2018 May 4;24(2):109-25.

Macklem, G. L. (2008). Parenting and emotion regulation. In *Practitioner's guide to emotion regulation in school-aged children* (pp. 49-62). Springer, Boston, MA.

Magaña, A. B., Goldstein, M. J., Karno, M., Miklowitz, D. J., Jenkins, J., & Falloon, I. R. (1986). A brief method for assessing expressed emotion in relatives of psychiatric patients. *Psychiatry research*, *17*(3), 203-212.

Mahan RM, Kors SB, Simmons ML, Macfie J. Maternal psychological control, maternal borderline personality disorder, and adolescent borderline features. Personality Disorders: Theory, Research, and Treatment 2018, Vol. 9, No. 4, 297–304

McDowell, D. J., & Parke, R. D. (2005). Parental control and affect as predictors of children's display rule use and social competence with peers. *Social Development*, *14*(3), 440-457.

Newman, L. K., Stevenson, C. S., Bergman, L. R., & Boyce, P. (2007). Borderline personality disorder, mother–infant interaction and parenting perceptions: preliminary findings. *Australian and New Zealand Journal of Psychiatry*, *41*(7), 598-605.

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.

Petfield, L., Startup, H., Droscher, H., & Cartwright-Hatton, S. (2015). Parenting in mothers with borderline personality disorder and impact on child outcomes. *Evidence-based mental health*, *18*(3), 67-75.

Phillips, N. K., Hammen, C. L., Brennan, P. A., Najman, J. M., & Bor, W. (2005). Early adversity and the prospective prediction of depressive and anxiety disorders in adolescents. *Journal of abnormal child psychology*, *33*(1), 13-24.

Piskernik, B., & Ahnert, L. (2019). What does it mean when fathers are involved in parenting?. *Advancing research and measurement on fathering and children's development. Monographs of the Society of Research in Child Development*, *84*(1), 64-78.

Powers, A. D., & Oltmanns, T. F. (2013). Borderline personality pathology and chronic health problems in later adulthood: The mediating role of obesity. *Personality Disorders: Theory, Research, and Treatment*, *4*(2), 152.

Reinelt E, Stopsack M, Aldinger M, Ulrich I, Grabe HJ, Barnow S. Longitudinal transmission pathways of borderline personality disorder symptoms: from mother to child?. Psychopathology. 2014;47(1):10-6.

Rubin, K. H., Coplan, R. J., Fox, N. A., & Calkins, S. D. (1995). Emotionality, emotion regulation, and preschoolers' social adaptation. *Development and Psychopathology*, *7*(1), 49-62

Sansone, R. A., & Sansone, L. A. (2011). Gender patterns in borderline personality disorder. *Innovations in clinical neuroscience*, *8*(5), 16.

Silberschmidt, A., Lee, S., Zanarini, M., & Schulz, S. C. (2015). Gender differences in borderline personality disorder: results from a multinational, clinical trial sample. *Journal of personality disorders*, *29*(6), 828-838.

Silverman, J. M., Pinkham, L., Horvath, T. B., Coccaro, E. F., Klar, H., Schear, S., ... & Siever, L. J. (1991). Affective and impulsive personality disorder traits in the relatives of patients with borderline personality disorder. *The American journal of psychiatry*.

Smith, S. W., Daunic, A. P., Barber, B. R., Aydin, B., Van Loan, C. L., & Taylor, G. G. (2014). Preventing risk for significant behavior problems through a cognitive-behavioral intervention: Effects of the Tools for Getting Along curriculum at one-year follow-up. *The journal of primary prevention*, *35*(5), 371-387.

Stepp, S. D., Olino, T. M., Klein, D. N., Seeley, J. R., & Lewinsohn, P. M. (2013). Unique influences of adolescent antecedents on adult borderline personality disorder features. *Personality Disorders: Theory, Research, and Treatment*, *4*(3), 223.

Stepp, S. D., Whalen, D. J., Pilkonis, P. A., Hipwell, A. E., & Levine, M. D. (2012). Children of mothers with borderline personality disorder: identifying parenting behaviors as potential targets for intervention. *Personality Disorders: Theory, Research, and Treatment*, *3*(1), 76.

Stepp, S. D., Whalen, D. J., & Pedersen, S. L. (2014). The externalizing pathway to borderline personality disorder in youth. In *Handbook of borderline personality disorder in children and adolescents* (pp. 247-263). Springer, New York, NY.

Stepp, S. D., Whalen, D. J., Scott, L. N., Zalewski, M., Loeber, R., & Hipwell, A. E. (2014). Reciprocal effects of parenting and borderline personality disorder symptoms in adolescent girls. *Development and Psychopathology*, *26*(2), 361-378.

Styron, T. H., Pruett, M. K., McMahon, T. J., & Davidson, L. (2002). Fathers with serious mental illnesses: A neglected group. *Psychiatric Rehabilitation Journal*, *25*(3), 215.

Yeung Thompson, R. S., & Leadbeater, B. J. (2013). Peer victimization and internalizing symptoms from adolescence into young adulthood: Building strength through emotional support. *Journal of research on adolescence*, *23*(2), 290-303.

Volling, B. L., & Cabrera, N. J. (2019). Advancing research and measurement on fathering and child development: I. Advancing research and measurement on fathering and child development: Introducing the issues and a conceptual framework. *Monographs of the Society for Research in Child Development*.

Weiss, M., Zelkowitz, P., Feldman, R. B., Vogel, J., Heyman, M., & Paris, J. (1996). Psychopathology in offspring of mothers with borderline personality disorder: A pilot study. *The Canadian Journal of Psychiatry*, *41*(5), 285-290.

Whalen, D. J., Silk, J. S., & Dahl, R. E. (2009). The impact of maternal borderline personality disorder on maternal emotional socialization and adolescent emotional vulnerability. *Manuscript in preparation*.

White, Candace N., John G. Gunderson, Mary C. Zanarini, and James I. Hudson. "Family studies of borderline personality disorder: A review." *Harvard Review of Psychiatry* 11, no. 1 (2003): 8-19.

Zalewski, M., Stepp, S. D., Scott, L. N., Whalen, D. J., Beeney, J. F., & Hipwell, A. E. (2014). Maternal borderline personality disorder symptoms and parenting of adolescent daughters. *Journal of personality disorders*, *28*(4), 541-554.

Zanarini, M. C., & Frankenburg, F. R. (1997). Pathways to the development of borderline personality disorder. *Journal of personality disorders*, *11*(1), 93-104

Figure 1: SCID Questionnaire

SCID-II	Borderline Personality Disorder Symptoms (1=yes, 0=no)
1	Do your relationship with people you really care about have lots of ups and downs
2	Have you often done things impulsively?
3	Are you a “moody” person
4	Do you often have temper outbursts or get so angry that you lose control?
5	Do you hit people or throw things when you get angry?
6	Do even little things get you very angry?
7	Have you tried to hurt or kill yourself or threatened to do so?
8	Are you different with people in different situations so that you sometimes don’t know who you really are?
9	Are you often confused about your long-term goals or career plans?
10	Do you often change your mind about the types of friends or lovers you want?
11	Are you often not sure about what your real values are?
12	Do you often feel bored or empty inside?
13	Have you often become frantic when you thought that someone you really cared about was going to leave you?

Table 1. Descriptive Data

	% Diagnosed
Predictors	
Paternal BPD Symptoms	2.25 (2.4)
Maternal BPD Symptoms	2.62 (2.7)
Paternal Internalizing Diagnoses	26.3%
Paternal Externalizing Diagnoses	1.3%
Maternal Depression Diagnoses	38.2%
Outcomes	
Offspring BPD Symptoms	2.34(.10)
Offspring Internalizing Symptoms	29.2(.40)
Offspring Externalizing Symptoms	2.81(.34)
Mediators & Moderator	M(SD)
Child Temperament	1.98(1.71)
Chronic Stress	2.26 (.54)
Demographic Characteristics	
Sex	
Male	47.5%
Female	52.5%
Race	
White	91.8%
Asian	4.5%
Maori/Islander	1.8%
Australian Aboriginal	1.6%
Median Parental Income	*10,400-16,000*
Median Parental Education	10^{th} grade

Table 2. Bivariate Correlations

	Paternal BPD	Maternal BPD	Paternal INT	Paternal EXT	Gender	Offspring EXT	Offspring INT	Offspring BPD	Maternal Depression	Paternal Expressed Emotion	Chronic Stress
Paternal BPD											
Maternal BPD	.092										
Paternal INT	**.350****	.050									
Paternal EXT	**.148****	**.164****	**.147****								
Gender	.069	.045	.051	.007							
Offspring EXT	.065	**.096***	.078	**.134****	**-.016***						
Offspring INT	**.118***	**.113***	**.145****	**.101***	**.189***	**.538****					
Offspring BPD	**.130****	.073	.069	.078	.083	**.405****	**.373****				
Maternal Depression	.078	**.300***	.075	.071	.003	**.099***	.087	**.096***			
Paternal Expressed Emotion	.056	-.008	.095	.081	-.011	.057	.059	**.156****	.029		
Chronic Stress	**.111***	**.174****	**.206****	**.132****	.045	**.193****	**.193***	**.228***	**.194****	**.176****	
Temperament	.017	**.149****	.004	.062	-.015	.024	.011	.007	**.119***	**.025**	**.113***

Table 3. Indirect effects of Chronic Family Stress

	Effect	SE	Lower 95% CL	Upper 95% CL
Paternal BPD x Offspring BPD	.024	.013	.004	.05
Paternal BPD x Offspring EXT	.021	.012	.002	.047
Paternal BPD x Offspring INT	.020	.011	.003	.045

Complete standardized effects used

Table 4. Indirect effects of Chronic Family Stress – Maternal BPD controlled

	Effect	SE	Lower 95% CL	Upper 95% CL
Paternal BPD x Offspring BPD	.022	.013	.003	.0512
Paternal BPD x Offspring EXT	.0201	.0119	.0016	.0473
Paternal BPD x Offspring INT	.0195	.0109	.0019	.0443

Complete standardized effects used

Table 5. Gender as a Moderator Between Paternal BPD and Offspring Outcomes

	Coeff	SE	t	p	Lower 95% CL	Upper 95% CL
Offspring BPD	-.005	.004	-1.12.	.261	-.012	.003
Offspring EXT	-.015	.013	-1.08	.278	-.041	.012
Offspring INT	.0004	.017	-.020	.983	-.342	.035

Complete standardized effects used