

A comprehensive assessment of personality traits and psychosocial functioning in parents
with bipolar disorder and their intimate partners

Lisa Serravalle

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By: Lisa Serravalle

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Signed by the final examining committee:

_____ Chair Dr. Andreas Arvanitogiannis

_____ Examiner Dr. Erin Barker

_____ Examiner Dr. Lisa Serbin

_____ Supervisor Dr. Mark Ellenbogen

Approved by

Chair of Department or Graduate Program Director

Dean of Faculty

Date

ABSTRACT

A comprehensive assessment of personality traits and psychosocial functioning in parents with bipolar disorder and their intimate partners

Lisa Serravalle, B.A.

Concordia University, 2019

Objectives. Little is known about the intimate partners of adults with bipolar disorder (BD). Such knowledge is needed to inform both couple and family interventions.

Methods. Participants were parents whose children were enrolled in a prospective study: 55 with BD and their partners, and 47 healthy control couples. All completed diagnostic interviews, and questionnaires describing personality traits, negative life events, coping skills, social support, marital adjustment and inter-partner verbal aggression. Parents with BD and healthy control parents were compared, as were the intimate partners. A series of analyses focused on the average measures within couples, with and without BD, and took account of comorbid substance use and personality disorders among those with BD and major depression among their partners.

Results. Intimate partners of adults with BD, relative to healthy control partners, presented with more mental disorders, higher neuroticism, lower extraversion, more emotion-focused coping, smaller social networks, less satisfaction with their social networks, and little, satisfying social contact. Additionally, they reported less consensus and satisfaction in their marital relationships, and engaged in more verbal aggression towards their partners. Participants with BD showed similar, more extreme, characteristics. Marital distress and verbal aggression were greatest among couples with an adult having BD and a comorbid condition or a partner with major depression.

Conclusions. Mental disorders, personality traits, ineffective coping skills and low social support may limit the support intimate partners provide to their mates with BD and promote chaotic family environments.

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Table of Contents

List of Tables	vii
Introduction	1
Methods	4
Participants.....	4
Measures	5
Procedure	7
Data Analysis	8
Results	8
Psychosocial Profile of Index Parents	9
Psychosocial Profile of Intimate Partners	9
Impact of Co-morbid Conditions on Couple Functioning	10
Discussion	11
Strengths and limitations	16
Conclusions	16
References	18

List of Tables

Table 1. Comparisons of personality traits, psychosocial functioning, and marital adjustment of index parents with bipolar disorder (BD) and index healthy control parents and of intimate partners of parents with BD and intimate partners of healthy control parents	30
Table 2. Comparisons of personality traits, psychosocial functioning and marital adjustment of couples with and without a partner with bipolar disorder	32
Table 3. Comparisons of personality traits, psychosocial functioning and marital adjustment of couples with a partner with bipolar disorder, with and without comorbid substance use disorders, and healthy control couples	34
Table 4. Comparisons of personality traits, psychosocial functioning and marital adjustment of couples with a partner with bipolar disorder, with and without a comorbid personality disorder, and healthy control couples	36
Table 5. Comparisons of personality traits and psychosocial functioning of couples in which one partner presents BD and the other major depression, couples in which one partner presents BD and the other no major depression, and healthy control couples	38

A comprehensive assessment of personality traits and psychosocial functioning in parents with
bipolar disorder and their intimate partners

Bipolar disorder (BD), a chronic and debilitating condition, is ranked among the top ten leading causes of disability worldwide (World Health Organization, 2001). In addition to the incapacitating effects of acute symptoms, persons with BD display maladaptive personality traits and impaired psychosocial functioning between episodes (Hodgins et al., 2002). Adults with BD also experience high levels of self-inflicted negative life events (Bender et al., 2010; Ellenbogen and Hodgins, 2004), and engage in ineffective coping strategies to address stressful situations. Additionally, they fail to establish and maintain social support networks that could aid in buffering stress (Beyer et al., 2003, Eidelman et al., 2012; Fletcher et al., 2013). Further complicating the picture, more than one-half of individuals with BD present with at least one comorbid Axis-I disorder, particularly substance use disorders (SUDs; Bauer et al., 2005; McElroy et al., 2001), and rates of personality disorders (PDs), primarily cluster B disorders, are high (Brieger et al., 2003; Fan and Hassell, 2008; George et al., 2003). Among adults with BD, those with, relative to those without, comorbid disorders show greater impairment in interpersonal functioning (Carpenter et al., 1995; Loftus and Jaegar, 2006; Pollack et al., 2000). Taken together, individuals with BD present with stable maladaptive traits and experience recurring self-inflicted stress that is addressed with ineffective coping skills and further compounded by low levels of social support. Targeting these factors with effective treatments could potentially improve the course of BD and ameliorate the child-rearing environment. To inform such interventions, more information is needed about these factors within the family context.

Many adults with BD form intimate relationships that they report to be unsatisfactory (Whisman, 2007) and fueled by verbal aggression from their partner (Lam et al., 2007). Not surprisingly, divorce rates are two to three times higher in adults with BD relative to the general population (Kogan et al., 2004; Suppes et al., 2001). One factor contributing to marital instability in these couples may be the presence of a major affective disorder in the partner, that is approximately three-to-four times greater in partners of adults with, than without, BD (Butterworth et al., 2008; Mathews and Reus, 2001; Nordsletten et al., 2016). Little else is known about the characteristics of the intimate partners selected by adults with BD. There is some evidence to suggest that partners of individuals having BD may also display dysfunctional psychosocial patterns, such as adopting ineffective coping styles (Borowiecka-Karpiuk et al., 2014). Therefore, the intimate partner's personality traits, self-inflicted negative life events, coping skills and social support could potentially lessen or exacerbate maladaptive behaviours of their spouse, and be associated with marital adjustment and family functioning.

Adults with BD and their partners often have children. The offspring of parents with BD (OBD) are at increased risk, as compared to offspring of parents with no mental disorder, to develop a major affective disorder by adolescence and early adulthood (Delbello and Geller, 2001; Duffy et al., 2007; Hillegers et al., 2005; Nijjar et al., 2015), to present internalizing and externalizing problems in childhood (Duffy et al., 2014), to experience interpersonal difficulties (Ostiguy et al., 2012; Ostiguy et al., 2009; Zahn-Waxler et al., 1984), to struggle with school work, (Shaw et al., 2005; McDonough-Ryan et al., 2002), to engage in risky sexual behaviours (Nijjar et al., 2014), and to show low occupational competence in young adulthood (Bella et al., 2011; Carlson and Weintraub, 1993).

Parents with BD contribute to these negative outcomes in their offspring in several ways. They transmit genes to their offspring that confer increased risk for affective disorders (Kieseppä et al., 2014; McGuffin et al., 2003), for other mental illnesses (Song et al., 2015), and for maladaptive personality traits such as neuroticism (Eley and Plomin, 1997). Additionally, parents with BD contribute to poor functioning and increased disorders among their offspring by creating a chaotic family environments failing to employ structured parenting practices (Iacono et al., 2017). Further, the intimate partners of parents with BD may also transmit genes conferring vulnerability for major affective disorders and for maladaptive personality traits, and contribute to the stressful family environment through their own maladaptive behaviors.

The intimate partners of adults with BD play key roles with respect to their disordered partner and to their children. For example, intimate partners of adults with BD could help their mentally-ill partner identify signs of developing episodes, provide support for taking medication, and encouraging participation in cognitive-behavioural programs aimed at reducing maladaptive behaviours, increasing effective coping skills and social support. Indeed, the inclusion of family members in the treatment of BD has been shown to improve outcomes, relative to individual therapy (Rea et al., 2003). Therefore, intimate partners may also be key participants in family-based interventions aimed at promoting healthy development of the OBD. Thus, gaining knowledge of the psychosocial functioning of the intimate partners of parents with BD is needed and to date, there are few empirical studies of these individuals.

The present study examined the mental health, personality traits, negative life events, coping skills, social support, marital adjustment and verbal aggression of adults with and without BD and their intimate partners. Participants were parents enrolled in a prospective study comparing the development of children of parents with BD and of children of healthy control

parents. Initially, to confirm and extend past findings, parents with BD were compared to healthy control parents. To meaningfully characterize the intimate partners of adults with BD, they were compared to partners of healthy control adults. In a second set of analyses, we focused on couples, comparing those with one partner with BD and those with two healthy control partners. Since comorbid SUDs and PDs are common among adults with BD (Bauer et al., 2005; Brieger et al., 2003; Fan and Hassell, 2008; George et al., 2003; McElroy et al., 2001), we conducted exploratory analyses to determine if couples that included a partner with BD and SUD or BD and PD differed from those without the comorbid disorder. Finally, given the elevated rate of major depressive disorder (MDD) among partners of adults with BD (Butterworth et al., 2008; Mathews & Reus, 2001; Nordsletten et al., 2016), we compared couples in which one partner presented BD with and without a partner with MDD to healthy couples.

Methods

Participants

Participants were 204 parents participating in a prospective study comparing the development of children of parents with BD and children of healthy control parents (references removed to maintain blind review). Of the 204 parents, 55 had BD, 29 males. Among the control families, one parent was randomly designated as an index parent ($n = 47$, 24 males). At the time of the assessments, the 204 parents had a mean age of 38.8 years ($SD = 5.2$). Eight stepparents (4 males) in the families with a parent having BD were included as they were involved in parenting the OBD. Eleven consisted of single-parent families (7 BD, 2 males). Parents with BD and their intimate partners were recruited from psychiatric outpatient clinics and support groups in Québec. Diagnoses were confirmed using an interview and psychiatric records. Using community advertisements, healthy control parents were recruited from the same geographic

regions as parents with BD, but were free of any current Axis-I disorder. Healthy control parents did meet criteria for *past* mental disorders: 6 (13%) drug abuse/dependence, 2 (4%) anxiety disorders, one (2%) avoidant PD, one (2%) obsessive-compulsive PD and one (2%) PD NOS. For inclusion, all parents were required to have at least one biological child between 4 to 14 years of age, be fluent in English or French, and have been raised and educated in Canada. Parents who presented with a chronic medical condition, physical handicap, or below-average intelligence quotient ($IQ < 70$) were excluded. Parents were mostly Caucasian, middle-class, and French Canadian.

Measures

Diagnostic Interviews.

The Structured Clinical Interview for DSM-III-R (SCID-I; Spitzer et al., 1992). The SCID-I, a valid and reliable diagnostic instrument, was used to assess parents' mental health (e.g., Zanarini and Frankenburg, 2001). Independent inter-rater agreements were obtained on 15% of the interviews. Agreement between clinicians was excellent as indicated by the kappa coefficients for diagnoses of bipolar disorder, 1.0, and other mood disorders 1.0, (lifetime and current).

The Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; Gibbon et al., 1997) was also administered to parents to assess the presence of personality disorders.

Questionnaires.

NEO Personality Inventory-Revised (NEO PI-R; Costa and McCrae, 1992). The NEO PI-R is a self-report personality inventory. It includes 240 items measuring levels of trait neuroticism, extraversion, agreeableness, openness to experience, and conscientiousness using a

Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Studies have demonstrated high internal consistency (Chronbach's $\alpha = .89$ to $.95$), convergent and discriminant validity, as well as temporal stability of the NEO PI-R (Costa et al., 2000; Costa and McCrae, 1992). Similar psychometric proprieties have been reported for its French translation (Rolland et al., 1998).

Dyadic Adjustment Scale (DAS; Spanier, 1976). The DAS is a 32-item, self-report questionnaire which evaluates overall relationship quality over the previous year within couples. The four subscales include consensus (agreement on matters important to the relationship), affectional expression (expression of affection and sexual desire), satisfaction (satisfaction with the relationship and commitment to its continuance), and cohesion (common interests and activities). Participants respond to each item using a Likert scale, with higher values indicating greater relationship quality. The DAS has adequate internal consistency (Chronbach's $\alpha = .70$ to $.95$). The DAS has been validated for its use in both English and French (Bouchard et al., 1991; Spanier and Thompson, 1982). The DAS was only administered to parents with a current intimate partner.

Revised Conflict Tactics Scales (CTS2; Straus et al., 1996). The CTS2 measures self-reported levels of verbal and physical aggression within couples. Parents were asked to identify how often each of the 78 items occurred during the previous year. Adequate internal consistency, construct validity, and test-retest reliability have been demonstrated for the CTS2 (Straus and Mickey, 2012; Vega and O'Leary, 2007). Given the low base rate of physical violence, only levels of verbal aggression were utilized. The CTS2 was administered only to parents with a current intimate partner.

Arizona Social Support Interview Schedule (ASSIS; Barrera, 1980; Barrera et al., 1981). The ASSIS is a semi-structured interview containing 30 questions pertaining to the structural

components of a participant's social network (size and frequency of contact) and the adequacy of social support (satisfaction). Internal consistency (Chronbach's $\alpha = .74-.78$) for the ASSIS are adequate (Barrera, 1980; Barrera et al., 1981).

Psychiatric Epidemiological Research Interview - Life Events Scale (PERI Life Events Scale; Dohrenwend et al., 1978). The PERI Life Events Scale measures participants' self-reported experiences of positive and negative life events which are coded as being dependent (e.g., divorce) or independent (e.g., a death in the family) of the participant's own behaviour. Only negative dependent and independent life events were utilized due to their associations with mental illness (Kendler et al., 2010; Risch et al., 2009).

Coping Inventory for Stressful Situation - Adult (CISS; Endler and Parker, 1994). Parents rated the extent to which they engaged in 48 different coping activities following stressful situations using a five-point scale ranging from 1 (*Not at all*) to 5 (*Very Much*). Standardized *T* scores for three primary styles of coping (task-oriented, emotion-focused, and avoidance-oriented) were obtained. High internal consistency (Chronbach's $\alpha = .78-.88$) and temporal stability have been reported for the CISS (Brands et al., 2014).

Procedure

Following a telephone screening, parents with BD were administered the SCID and SCID-II interviews in the laboratory or at their homes, as well as the NEO PI-R, CISS, ASSIS, DAS, and CTS2. Parents with BD were euthymic during testing. The intimate partners of parents with BD also completed the same interviews and questionnaires independently. The same procedure was undergone for healthy controls. Subsamples of parents and their intimate partners were contacted at a later date to complete the PERI-Life Event Scale. Informed written consent

was obtained from all parents and procedures were approved by the Ethics Committee of the (removed to maintain blind review).

Data Analysis

Data were screened and corrected for outliers and distributional anomalies that violated statistical assumptions. A series of Multivariate Analysis of Covariance (MANCOVA) tests were conducted to examine differences in personality traits, negative life events, coping skills, social support, marital adjustment and verbal aggression between BD and healthy control index parents, and the partners of parents with BD and healthy control partners. MANCOVAs were also conducted to compare couples with a parent having BD and a comorbid mental disorder, couples having a parent with BD and no comorbid mental disorder and healthy control couples. Due to the issue of non-independence and to obtain a global estimate of couple functioning, the latter analyses used mean scores across all available parents when there was more than one parent in a family. For the measure of verbal aggression at the couple level, we averaged the mean levels of verbal aggression towards and from partners (i.e., inter-partner verbal aggression). These analyses were conducted separately for each comorbid condition of interest (i.e., SUD and PD). Similar analyses were conducted to examine the effects of having an intimate partner with a history of MDD in couples with a parent having BD. Education, a proxy for socio-economic status, was used as a covariate for all analyses.

Results

The results of multivariate omnibus tests are not presented below as they were not of interest and it has been suggested that their statistical significance should not guide subsequent contrast analyses (Kline, 2008). However, the omnibus tests for each specific contrast analysis are reported in tables.

Personality traits, negative life events, coping skills, social support, marital adjustment and inter-partner verbal aggression

Index parents with BD and healthy control partners. Of the index parents with BD, 10 (18%) also presented SUDs, and 15 (27%) PDs. As presented in Table 1, index parents with BD differed from index healthy controls on most measures. Index parents with BD, relative to index healthy controls, obtained higher scores for neuroticism, as well as lower scores for agreeableness and for conscientiousness. Index parents with BD self-inflicted more negative life events, reported less effective coping skills, and deficient social support, specifically smaller networks, less satisfaction, and fewer contacts, relative to index healthy controls. Index parents with BD showed less affection to their partner, were less satisfied with their relationship perceiving it to be less cohesive, than index healthy control parents, and more often reported being the victim of verbal aggression from their partner.

Partners of index parents with BD and healthy control partners. The intimate partners of parents with BD and healthy control partners also differed. Among the intimate partners of parents with BD, 18 (31%) presented past or current major depression, 9 (15%) past or current alcohol abuse/dependence, 6 (10%) past or current drug abuse/dependence, 6 (10%) past or current anxiety disorders, one (2%) borderline PD, one (2%) avoidant PD, one (2%) narcissistic PD, one (2%) schizotypal PD, and 2 (3%) passive aggressive PD. As presented in Table 1, partners of index parents with BD, relative to healthy control partners, obtained higher scores for neuroticism, and lower scores for extraversion. Partners of parents with BD engaged in more emotion-focused coping relative to partners of healthy control index parents, and reported smaller social networks, less satisfaction with their social networks, and little, satisfying social

contact. Additionally, they reported less consensus and satisfaction in their marital relationships, and engaged in more verbal aggression towards their partners.

In sum, index parents with BD differed from healthy control index parents as to high levels of maladaptive personality traits, self-inflicted negative life events, ineffective coping skills, low levels of social support, unsatisfying marriages, and verbal abuse from their spouse. Their intimate partners differed from the healthy control partners to a lesser extent, but significantly as to the same personality traits, the use of emotion-focused coping skills, low levels of social support, as well as unsatisfactory marital relationships and verbally abusing their spouse.

Comparisons of personality traits, negative life events, coping skills, social support, and marital adjustment and inter-partner abuse of couples with and without a partner with BD

The next series of analyses compared mean scores of couples with and without a partner with BD. As presented in Table 2, couples with one partner with BD, as compared to healthy control couples, obtained higher scores for neuroticism, lower scores for extraversion and conscientiousness. The couples with a partner with BD reported more self-inflicted negative life events and more ineffective coping skills, less social support, poorer marital adjustment and more verbal aggression.

Couples in which one partner presents BD and comorbid SUD. As presented in Table 3, couples that included a partner with BD no SUD as compared to those with BD and SUD, displayed more avoidance-oriented coping. Differences between couples with BD, with and without SUDs, relative to healthy couples were similar with only a few exceptions.

Couples in which one partner presents BD and a PD. As presented in Table 4, couples that included a partner with BD and PDs as compared to those with BD and no PD, obtained lower scores for avoidant coping, and reported less consensus and satisfaction with their marital relationship. Increased inter-partner violence was found in couples with a parent having BD and PDs relative to healthy control couples; this difference was not found between couples with a BD parent and no PD and control couples. On most measures, both types of couples with a partner with BD differed from healthy couples.

Couples in which one partner presents BD and one MDD. As presented in Table 5, among the couples with one partner with BD, those that included a partner with MDD differed only on two measures from the couples without MDD: lower scores for agreeableness and less affection in the marital relationship. Generally, relative to healthy control couples, the couples with one partner with BD, with and without a partner with MDD, were similar.

Discussion

The present study examined parents with BD comparing them to healthy control parents, and for the first time conducted a comprehensive assessment of mental disorders, personality traits, negative life events, coping skills, social support networks and satisfaction with their intimate partners. Additionally, marital adjustment as viewed by each partner was described. Participants were parents of children enrolled in a prospective study. The intimate partners of parents with BD were compared to the intimate partners of healthy control parents. In a second step, we examined the same factors within couples, taking account of comorbid disorders among the participants with BD and the presence of MDD in their partner, in order to provide a portrait of couples in which one partner presents with BD.

In line with previous research (Bender et al., 2010; Fletcher et al., 2013; MacQueen et al., 2001), relative to healthy control parents, parents with BD displayed more maladaptive personality traits, greater self-inflicted stress, ineffective coping strategies, smaller social networks and fewer social contacts that provided lower levels of satisfaction. They reported that their marital relationships were also unsatisfactory and that they were verbally abused by their partners. Thus, between acute episodes of BD, these participants elicit high levels of stress that may well have also impacted their partners and children. Moreover, they cope ineffectively with the stress and receive little social support from those around them, including their intimate partners. These findings suggest that parents with BD could benefit from interventions aimed at reducing self-inflicted negative life events, increasing effective skills to cope with stress, developing satisfying social support networks and marital relationships.

The intimate partners of the parents with BD differed in multiple ways from the partners of healthy control parents. Consistent with the literature on assortative mating (Butterworth et al., 2008; Mathews and Reus, 2001; Nordsletten et al., 2016), 56% of the partners of parents with BD presented current or past axis I disorders, and 10% presented with axis II disorders. Additionally, they presented high levels of neuroticism, low levels of extraversion, and frequent use of emotion-focused coping, relative to healthy control partners. Given the even higher levels of neuroticism of their partners who repeatedly created stress with which they ineffectively coped, the characteristics of the intimate partner of the participants with BD more likely inflame, rather than calm, repeated stressful situations. Consistent with the literature on caregiver burden (Perlick et al., 2016; Perlick et al., 2007), the intimate partners of the parents with BD had few contacts outside the couple, and thereby little social support, while acknowledging that their marital relationship was unsatisfactory to the point that they verbally abused their spouse. This

portrait of the intimate partners of parents with BD does not suggest that these individuals could easily carry the burden imposed by a partner with BD, nor provide the support needed by their ill partners. In fact, the intimate partners may benefit, as could their partners with BD, from interventions aimed at developing effective coping skills, social support networks, and a satisfying marital relationship. These findings are consistent with and further support the use of efficacious adjunct interventions for BD targeting families, such as Family-Focused Therapy for BD, rather than pharmacotherapy alone (Miklowitz et al., 2003; Miklowitz, et al., 2017).

The portrait of the intimate partners of parents with BD indicates that they confer risk for mental disorders, neuroticism, and low psychosocial functioning in the OBD, rather than providing a buffering effect. The presence of heritable mental disorders and neuroticism among the intimate partners of parents with BD suggest that they may transmit genes to the OBD that increase their liability for similar disorders and the trait of neuroticism (Eley and Plomin, 1997; Kieseppä et al., 2014; McGuffin et al., 2003; Song et al., 2015). As well, the presence of disorders and high levels of neuroticism alter the behaviours of both partners towards their children. Importantly, the presence of high neuroticism in both parents has been shown to have profound effects on their offspring (Ellenbogen et al., 2010; Lahey, 2009). Indeed, parents' neuroticism is associated prospectively with poor interpersonal functioning and higher rates of risky sexual behaviours in late adolescence and early adulthood among their offspring (Ostiguy et al., 2012; Nijjar et al., 2016). Further, OBD show greater sensitivity to their parents' emotionality than offspring of healthy control parents (Ostiguy et al., 2011). Results also indicate that both parents model maladaptive behaviours such as emotion-focused coping skills, a lack of social support, and an unsatisfactory marriage. The intimate partners further exacerbate the family environment by verbally aggressing their partners.

Comparisons of the couples with and without a partner with BD showed dramatic differences on almost all measures, thereby demonstrating the profound effect of BD on the family environment and the need for treatments for the adults with BD and their partners, but also interventions to promote healthy development of the OBD. Couples that included a partner with BD showed elevated levels of neuroticism which ensure stable, heightened, emotions fueled by verbal abuse, self-inflicted stress that remains unresolved and that may even be exacerbated by emotion-focused coping and unbuffered by either a satisfying marital relationship or social support network. Overall, these findings do not suggest a family environment that is healthy for either the parents or the children.

Marital problems, high levels of emotion-focused coping and failure to establish social support networks by the partners of adults with BD may result from a heightened perception of the burden imposed by their partners (Borowiecka-Karpiuk et al., 2014; Perlick et al., 2007; Reinares et al., 2006). Alternatively, or additionally, the maladaptive behaviours of the partners, like those of adults with BD, may be associated with high levels of neuroticism. For example, individuals high in neurotic traits tend to respond to stress with negative affect (Jacobs et al., 2011) that in turn is linked to emotion-focused coping strategies. Similarly, neuroticism is associated with depression symptoms that are in turn linked to low levels of social support (Stice et al., 2004). The intimate partners of parents with BD, but not the parents with BD, reported decreased extraversion compared to healthy controls. This finding is important as low extraversion is associated with negative health outcomes, anxiety disorders, and depressive symptoms, all of which might exacerbate an already stressful home environment (Bienvenu et al., 2007; Hakulinen et al., 2015).

Contrasting individual parent reports of marital adjustment in the dyad revealed interesting discrepancies. Similar to previous research (Lam et al., 2005; Whisman, 2007), both parents with BD and their intimate partners reported low marital satisfaction relative to healthy controls. However, differences in partner reports surfaced with regards to other aspects of marital functioning. Parents with BD, but not their intimate partners, qualified their relationships as having infrequent expressions of affection and sexual desire and few common activities and interests within the couple, relative to healthy controls. This result concurs with previous studies reporting heightened difficulties adjusting to the shifts in sexual arousal/desire during manic and depressive episodes of the affected partner, as reported by their intimate partners (Lam et al., 2005). Consistent with previous literature (Perlick et al., 2016), intimate partners of parents with BD often experience depressive symptoms themselves, which includes decreased interest for activities and sex. Therefore, this may be another way by which the partner with BD may be unsatisfied in these areas of their relationship. From the perspective of the intimate partner of adults with BD, difficulties in marital adjustment are driven by disagreements on what is important in their relationship. This may be a result of the burden of caregiving often experienced by intimate partners of patients with BD, including increased responsibilities in maintaining finances, household routines, and childcare (Perlick et al., 2007).

Surprisingly, the presence of comorbid SUDs and PD in adults with BD, or MDD in their partner, altered few of the differences between couples with BD and healthy control couples. Social support, including smaller social networks, less social contact and diminished satisfaction, emerged as the single domain that displayed consistent impairment across all couples that included a partner with BD, regardless of comorbid PD or SUDs or MDD in their partners. There were, however, a few findings specific to comorbid conditions in adults with BD or having a

spouse with MDD. Inter-partner verbal abuse was greatest among couples with BD and PDs, which is consistent with studies showing high rates of personality disorder among domestic violence perpetrators (Gibbons et al., 2011). Marital difficulties in couples with BD and comorbid PD or a partner with MDD were greater than couples with BD but no comorbid PD or a partner with no MDD. These findings suggest that the marital adjustment and verbal abuse associated with BD may be driven, in part, by mental disorders other than BD within these couples. With respect to PD, this is not surprising as symptoms of PDs in an intimate partner within community samples have been associated with marital dysfunction and low satisfaction (South et al., 2008; Whisman and Schonbrun, 2009).

To the best of our knowledge, this is the first study to conduct a comprehensive assessment of mental disorders, personality traits, negative life events, coping skills, social support and marital adjustment of adults with BD and their partners using structured, validated, measures. Results of the study can only be generalized to middle-class and Caucasian parents with BD and their partners who care for children. These individuals may differ from other adults with BD who have no children, or families living in poverty or from minority communities. For example, the participants with BD in the current study showed lower rates of anxiety disorders than previously reported among adults with BD (McElroy et al., 2001). Another limitation was the relatively small sample size that may have prevented the detection of differences when taking account of comorbid disorders.

In conclusion, adults with BD select intimate partners who are verbally aggressive and resemble them as to maladaptive personality traits and ineffective coping skills. Both adults with BD and their intimate partners report a paucity of social support. These findings indicate that the intimate partners, as well as the partners with BD, could benefit from interventions aimed at

lowering emotionality, increasing social support, and improving effective coping skills. As the partners with BD self-inflict negative life events at a high rate, these likely affect their intimate partners. Not surprisingly, both partners in these couples report a lack of cohesion and satisfaction in their relationships. Thus, findings indicate that couple therapy may be warranted. Surprisingly, the presence of disorders comorbid with BD altered few of the differences between couples with one partner with BD and healthy control couples, and in fact there were few differences between partners with BD with and without SUDs or PD. However, marital distress in couples and verbal aggression toward partners of adults with BD were exacerbated by comorbid conditions. Interventions targeting the identified characteristics of the couples in which one partner presents BD would also likely benefit the OBD. This hypothesis merits testing. Indeed, strong social support systems in parents with BD during middle childhood were found to act as a protective factor against future development of psychopathology in OBD in early adulthood (Yong Ping et al., manuscript in preparation). Further, family-based interventions aimed at promoting healthy development of OBD, need to take account of the personality traits, and psychosocial functioning of both parents. The importance of such interventions promoting healthy development of OBD is underlined by the genetic liability for disorders and neuroticism transmitted by both the parent with BD and his/her partner.

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Table 1. Comparisons of personality traits, psychosocial functioning, and marital adjustment of index parents with bipolar disorder (BD) and index healthy control parents and of intimate partners of parents with BD and intimate partners of healthy control parents

	Index Parents				Intimate Partners			
	BD	Healthy control	<i>F</i>	η^2	of adults with BD	of healthy controls	<i>F</i>	η^2
	<i>M</i> (SD)	<i>M</i> (SD)			<i>M</i> (SD)	<i>M</i> (SD)		
PERSONALITY^a								
Neuroticism	60.40 (12.7)	45.11 (8.80)	33.410**	.252	50.49 (10.2)	44.58 (8.70)	7.411**	.070
Extraversion	48.47 (9.11)	51.45 (7.35)	1.626	.016	47.10 (7.87)	52.67 (7.22)	11.078**	.101
Openness	50.95 (10.5)	52.85 (8.65)	.012	.000	48.20 (8.35)	50.98 (7.04)	.995	.010
Agreeableness	49.56 (9.74)	54.04 (6.74)	4.083*	.040	51.19 (8.41)	49.67 (8.77)	1.141	.011
Conscientiousness	44.44 (11.1)	50.43 (6.07)	6.245*	.059	50.18 (9.84)	51.42 (7.74)	.186	.002
NEGATIVE LIFE EVENTS^b								
Dependent	2.83 (1.98)	1.09 (1.28)	13.407**	.148	1.93 (1.33)	1.58 (1.56)	.897	.015
Independent	.44 (.620)	.31 (.592)	.899	.012	.32 (.548)	.39 (.556)	.249	.004
COPING SKILLS^c								
Task-Oriented	44.80 (10.8)	51.60 (9.75)	5.823*	.056	49.40 (8.85)	51.88 (8.11)	.982	.010
Emotion-Focused	55.27 (10.4)	46.70 (8.68)	11.385**	.103	49.90 (8.79)	45.63 (7.51)	5.691*	.055
Avoidance-Oriented	53.04 (11.9)	44.62 (9.24)	15.102**	.132	48.34 (9.63)	46.37 (10.6)	1.074	.011
SOCIAL SUPPORT^d								
Size of Social Network	10.04 (6.66)	17.85 (13.8)	7.655**	.072	10.25 (7.74)	16.60 (12.4)	8.664**	.080
Satisfaction with Social Network	25.53 (3.56)	28.30 (2.01)	17.781**	.152	25.98 (3.46)	28.23 (2.45)	11.799**	.106
Amount of Social Contact	6.27 (6.98)	12.47 (11.8)	7.078**	.067	7.61 (7.91)	12.65 (11.8)	5.469*	.052

Satisfaction with Social Contact	4.25 (.947)	4.74 (.610)	6.399*	.061	4.14 (.973)	4.63 (.691)	7.089**	.067
MARITAL ADJUSTMENT^e								
Consensus	50.87 (7.80)	53.62 (5.66)	2.458	.030	49.77 (8.12)	52.88 (6.54)	4.896*	.058
Affectional Expression	8.24 (2.50)	9.31 (1.81)	7.050**	.081	8.00 (2.66)	9.10 (2.41)	3.473	.042
Satisfaction	35.71 (7.70)	39.56 (4.46)	5.536*	.065	32.63 (8.90)	39.53 (4.83)	17.494**	.179
Cohesion	13.79 (5.48)	16.18 (3.51)	4.938*	.058	13.81 (5.49)	15.68 (4.04)	3.603	.043
VERBAL AGGRESSION^f								
From Partner	18.39 (21.6)	8.62 (11.6)	3.965*	.047	14.98 (21.0)	10.61 (10.8)	.413	.005
Towards Partner	16.71 (21.9)	8.73 (9.78)	3.756	.045	23.73 (26.8)	8.95 (9.31)	8.107**	.090

T-scores were used for the Personality and Coping Skills subcategories, * $p < .05$, ** $p < .01$, BD: bipolar disorder

^aFrom the NEO Personality Inventory-Revised; BD and healthy control index parent $n = 55$ and 47 , respectively, and partners of adults with BD and healthy control partners $n = 59$ and 43 , respectively.

^bFrom the Life Events Scale; BD and Healthy control index parent $n = 48$ and 32 , respectively, and partners of adults with BD and healthy control partners $n = 28$ and 33 , respectively.

^cFrom the Coping Inventory of Stressful Situations; BD and Healthy control index parent $n = 55$ and 47 , respectively, and partners of adults with BD and healthy control partners $n = 58$ and 43 , respectively.

^dFrom the Arizona Social Support Interview; BD and Healthy control index parent $n = 55$ and 47 , respectively, and partners of adults with BD and healthy control partners $n = 59$ and 43 , respectively.

^eFrom the Dyadic Adjustment Scale; BD and Healthy control index parent $n = 38$ and 45 , respectively, and partners of adults with BD and healthy control partners $n = 43$ and 40 , respectively.

^fFrom the Conflict Tactic Scale; BD and Healthy control index parent $n = 38$ and 45 , respectively, and partners of adults with BD and healthy control partners $n = 44$ and 41 , respectively.

Table 2. Comparisons of personality traits, psychosocial functioning and marital adjustment of couples with and without a partner with bipolar disorder

	Couples		<i>F</i>	η^2
	One partner with BD	Two healthy control partners		
	<i>M</i> (SD)	<i>M</i> (SD)		
PERSONALITY^a				
Neuroticism	55.37 (7.43)	44.94 (7.35)	35.86**	.260
Extraversion	47.88 (6.45)	52.10 (5.56)	7.80**	.071
Openness	49.68 (7.70)	52.10 (6.46)	.13	.001
Agreeableness	50.11 (6.81)	52.16 (5.71)	.51	.005
Conscientiousness	47.12 (7.73)	51.06 (5.45)	6.21*	.057
NEGATIVE LIFE EVENTS^b				
Dependent	2.55 (1.47)	1.32 (1.17)	13.17**	.144
Independent	.40 (.48)	.35 (.40)	.61	.008
COPING SKILLS^c				
Task-Oriented	46.93 (7.43)	51.60 (7.20)	5.51*	.052
Emotion-Focused	52.56 (7.13)	46.19 (6.08)	13.41**	.117
Avoidance-Oriented	51.33 (8.15)	45.38 (7.60)	14.20**	.123
SOCIAL SUPPORT^d				
Size of Social Network	10.16 (5.72)	17.20 (9.22)	12.52**	.109
Satisfaction with Social Network	25.75 (2.89)	28.27 (1.85)	21.07**	.171

Amount of Social Contact	7.00 (6.02)	12.45 (8.10)	8.73**	.079
Satisfaction with Social Contact	4.19 (.76)	4.70 (.50)	10.33**	.092
MARITAL ADJUSTMENT^e				
Consensus	50.39 (6.72)	53.52 (5.44)	6.51*	.069
Affectional Expression	8.08 (2.41)	9.23 (1.95)	6.65*	.070
Satisfaction	34.07 (7.80)	39.72 (4.22)	15.83**	.152
Cohesion	14.04 (4.89)	16.15 (3.32)	5.25*	.056
VERBAL AGGRESSION^f				
Inter-partner	18.45 (19.47)	9.44 (9.34)	3.46	.038

T-scores were used for the Personality and Coping Skills subcategories, * $p < .05$, ** $p < .01$, BD: bipolar disorder

^aFrom the NEO-PI-R; couples having one partner with BD and healthy controls $n = 58$ and 47 , respectively.

^bFrom the Life Events Scale; couples having one partner with BD and healthy controls $n = 48$ and 33 , respectively.

^cFrom the CISS; couples having one partner with BD and healthy controls $n = 57$, and 47 , respectively.

^dFrom the ASSIS; couples having one partner with BD and healthy controls $n = 58$ and 47 , respectively.

^eFrom the DAS; couples having one partner with BD and healthy controls $n = 45$ and 46 , respectively.

^fFrom the CTS; couples having one partner with BD and healthy controls $n = 45$ and 45 , respectively.

Table 3. Comparisons of personality traits, psychosocial functioning and marital adjustment of couples with a partner with bipolar disorder, with and without comorbid substance use disorders, and healthy control couples

	Couples			<i>F</i>	η^2	Couples with a partner with BD + SUD vs healthy control couples	Couples with a partner with BD no SUD vs healthy control couples	Couples with a partner with BD + SUD vs couples with a partner with BD no SUD	
	One partner with BD		Two healthy control partners						
	SUD	No SUD							
	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)						
PERSONALITY^a									
Neuroticism	56.99 (7.36)	54.59 (7.44)	44.94 (7.35)	18.339**	.266	✓	✓		
Extraversion	47.81 (5.86)	47.91 (6.79)	52.10 (5.56)	3.866*	.071		✓		
Openness	49.59 (6.67)	49.72 (8.24)	52.10 (6.46)	.112	.002				
Agreeableness	50.14 (7.83)	50.09 (6.36)	52.16 (5.71)	.287	.006				
Conscientiousness	46.38 (7.34)	47.48 (7.99)	51.06 (5.45)	3.208*	.060	✓	✓		
NEGATIVE LIFE EVENTS^b									
Dependent	2.53 (1.34)	2.56 (1.55)	1.32 (1.17)	6.510**	.145	✓	✓		
Independent	.41 (.523)	.39 (.470)	.35 (.405)	.333	.009				
COPING SKILLS^c									
Task-Oriented	45.98 (6.24)	47.41 (7.99)	51.60 (7.20)	2.855	.054	✓			
Emotion-Focused	53.40 (6.16)	52.14 (7.62)	46.19 (6.08)	6.725**	.119	✓	✓		
Avoidance-Oriented	48.19 (6.74)	52.89 (8.42)	45.38 (7.60)	9.534**	.160		✓	✓	

SOCIAL SUPPORT^d							
Size of Social Network	9.87 (5.47)	10.30 (5.91)	17.20 (9.22)	6.206**	.109	✓	✓
Satisfaction with Social Network	26.34 (2.56)	25.47 (3.03)	28.27 (1.85)	11.503**	.186	✓	✓
Amount of Social Contact	6.87 (6.51)	7.06 (5.85)	12.45 (8.10)	4.330*	.079	✓	✓
Satisfaction with Social Contact	4.15 (.797)	4.21 (.748)	4.70 (.496)	5.134**	.092	✓	✓
MARITAL ADJUSTMENT^e							
Consensus	49.97 (8.53)	50.58 (5.88)	53.52 (5.44)	3.331*	.071	✓	✓
Affectional Expression	8.16 (1.87)	8.05 (2.65)	9.23 (1.95)	3.287*	.070		✓
Satisfaction	33.18 (7.24)	34.47 (8.12)	39.72 (4.22)	8.057**	.156	✓	✓
Cohesion	13.22 (4.86)	14.40 (4.94)	16.15 (3.32)	3.039	.065	✓	
VERBAL AGGRESSION^f							
Inter-partner	22.73 (18.99)	16.52 (19.69)	9.44 (9.34)	2.055	.046		

T-scores were used for the Personality and Coping Skills subcategories, * $p < .05$, ** $p < .01$

BD: Bipolar Disorder. SUD: Substance Use Disorder. ✓ = significant group difference.

^aFrom the NEO-PI-R; BD with and without a SUD and healthy controls $n = 19, 39,$ and $47,$ respectively.

^bFrom the Life Events Scale; ; BD with and without a SUD and healthy controls $n = 16, 32,$ and $33,$ respectively.

^cFrom the CISS; BD with and without a SUD and healthy controls $n = 19, 38,$ and $47,$ respectively.

^dFrom the ASSIS; BD with and without a SUD and healthy controls $n = 19, 39,$ and $47,$ respectively.

^eFrom the DAS; BD with and without a SUD and healthy controls $n = 14, 31,$ and $46,$ respectively.

^fFrom the CTS; BD with and without a SUD and healthy controls $n = 14, 31,$ and $45,$ respectively.

Table 4. Comparisons of personality traits, psychosocial functioning and marital adjustment of couples with a partner with bipolar disorder, with and without a comorbid personality disorder, and healthy control couples

	Couples			<i>F</i>	η^2	Couples with a partner with BD and PD vs healthy control couples	Couples with a partner with BD no PD vs healthy control couples	Couples with a partner with BD and PD vs Couples with a partner with BD no PD
	One partner with BD		Two healthy control partners					
	PD <i>M</i> (SD)	No PD <i>M</i> (SD)	<i>M</i> (SD)					
PERSONALITY^a								
Neuroticism	58.52 (7.40)	53.59 (6.93)	44.94 (7.35)	20.396**	.288	✓	✓	
Extraversion	45.59 (6.18)	49.17 (6.31)	52.10 (5.56)	5.786**	.103	✓		
Openness	48.79 (9.44)	50.18 (6.60)	52.10 (6.46)	.070	.001			
Agreeableness	49.29 (6.58)	50.58 (6.98)	52.16 (5.71)	.273	.005			
Conscientiousness	47.90 (7.55)	46.68 (7.90)	51.06 (5.45)	3.453*	.064		✓	
NEGATIVE LIFE EVENTS^b								
Dependent	2.22 (1.34)	2.75 (1.53)	1.32 (1.17)	7.813**	.169		✓	
Independent	.50 (.490)	.33 (.480)	.35 (.405)	1.602	.040			
COPING SKILLS^c								
Task-Oriented	45.83 (6.31)	47.57 (8.03)	51.60 (7.20)	2.811	.053	✓	✓	
Emotion-Focused	53.72 (6.54)	51.88 (7.47)	46.19 (6.08)	6.707**	.118	✓	✓	
Avoidance-Oriented	46.72 (4.99)	54.01 (8.48)	45.38 (7.60)	13.932**	.218		✓	✓
SOCIAL SUPPORT^d								

Size of Social Network	9.17 (5.47)	10.73 (5.86)	17.20 (9.22)	6.200**	.109	✓	✓
Satisfaction with Social Network	26.04 (2.90)	25.59 (2.92)	28.27 (1.85)	10.844**	.177	✓	✓
Amount of Social Contact	5.87 (6.44)	7.64 (5.77)	12.44 (8.10)	4.413**	.080	✓	✓
Satisfaction with Social Contact	4.10 (.80)	4.24 (.740)	4.70 (.496)	5.249**	.094	✓	✓
MARITAL ADJUSTMENT^e							
Consensus	48.35 (7.07)	51.88 (6.16)	53.52 (5.44)	5.885**	.119	✓	✓
Affectional Expression	7.78 (1.84)	8.31 (2.78)	9.23 (1.95)	3.844*	.081	✓	
Satisfaction	31.68 (8.08)	35.81 (7.25)	39.72 (4.22)	10.878**	.200	✓	✓
Cohesion	13.14 (4.72)	14.69 (5.00)	16.15 (3.32)	3.501*	.074	✓	
VERBAL AGGRESSION^f							
Inter-partner	22.85 (19.60)	15.24 (19.12)	9.44 (9.34)	2.307	.051	✓	

T-scores were used for the Personality and Coping Skills subcategories, * $p < .05$, ** $p < .01$

BD: Bipolar Disorder. PD: Personality Disorder. ✓ = significant group difference.

^aFrom the NEO-PI-R; BD with and without a PD and healthy controls $n = 21, 37,$ and $47,$ respectively.

^bFrom the Life Events Scale; BD with and without a PD and healthy controls $n = 18, 30,$ and $33,$ respectively.

^cFrom the CISS; BD with and without a PD and healthy controls $n = 21, 36,$ and $47,$ respectively.

^dFrom the ASSIS; BD with and without a PD and healthy controls $n = 21, 37,$ and $47,$ respectively.

^eFrom the DAS; BD with and without a PD and healthy controls $n = 19, 26,$ and $46,$ respectively.

^fFrom the CTS; BD with and without a PD and healthy controls $n = 19, 26,$ and $45,$ respectively.

Table 5. Comparisons of personality traits and psychosocial functioning of couples in which one partner presents BD and the other major depression, couples in which one partner presents BD and the other no major depression, and healthy control couples

	<u>Couples</u>			<i>F</i>	η^2	Couples with a partner with BD and MDD vs healthy control couples	Couples with a partner with BD no MDD vs healthy control couples	Couples with a partner with BD and MDD vs Couples with a partner with BD no MDD
	One partner with BD		Two healthy control partners					
	MDD	No MDD						
	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)					
PERSONALITY^a								
Neuroticism	57.07 (7.13)	54.61 (7.53)	44.94 (7.35)	18.821**	.272	✓	✓	
Extraversion	48.02 (6.64)	47.81 (6.44)	52.10 (5.56)	3.866*	.071		✓	
Openness	49.49 (7.06)	49.76 (8.06)	52.10 (6.46)	.084	.002			
Agreeableness	47.34 (8.41)	51.35 (5.64)	52.16 (5.71)	3.094*	.058	✓		✓
Conscientiousness	48.00 (6.05)	46.7 (8.42)	51.06 (5.45)	3.300*	.061		✓	
NEGATIVE LIFE EVENTS^b								
Dependent	2.25 (1.30)	2.70 (1.54)	1.32 (1.17)	7.188**	.157	✓	✓	
Independent	.38 (.500)	.41 (.483)	.35 (.405)	.325	.008			
COPING SKILLS^c								
Task-Oriented	46.28 (6.21)	47.23 (7.99)	51.60 (7.20)	2.853	.054	✓		
Emotion-Focused	51.98 (6.02)	52.83 (7.65)	46.19 (6.08)	6.739**	.119	✓	✓	
Avoidance-Oriented	51.26 (7.21)	51.36 (8.64)	45.38 (7.60)	7.029**	.123	✓	✓	

SOCIAL SUPPORT^d							
Size of Social Network	9.42 (5.42)	10.50 (5.89)	17.20 (9.22)	6.389**	.112	✓	✓
Satisfaction with Social Network	26.22 (2.73)	25.54 (2.97)	28.27 (1.85)	10.976**	.179	✓	✓
Amount of Social Contact	6.23 (4.92)	7.34 (6.49)	12.45 (8.10)	4.521**	.082	✓	✓
Satisfaction with Social Contact	4.19 (.686)	4.19 (.797)	4.70 (.496)	5.118**	.092	✓	✓
MARITAL ADJUSTMENT^e							
Consensus	49.97 (5.33)	50.60 (7.39)	53.52 (5.44)	3.266*	.070	✓	✓
Affectional Expression	6.72 (2.94)	8.77 (1.79)	9.23 (1.95)	8.342**	.161	✓	✓
Satisfaction	32.83 (6.65)	34.68 (8.35)	39.72 (4.22)	8.337**	.161	✓	✓
Cohesion	13.21 (5.10)	14.45 (4.82)	16.15 (3.32)	3.059	.066	✓	
VERBAL AGGRESSION^f							
Inter-partner	20.95 (16.63)	17.28 (20.93)	9.44 (9.34)	2.023	.045		

T-scores were used for the Personality and Coping Skills subcategories, * $p < .05$, ** $p < .01$

BD: Bipolar Disorder. MDD: Major Depression Disorder. ✓ = significant group difference.

^aFrom the NEO-PI-R; BD with and without a MDD and controls $n = 18, 40,$ and $47,$ respectively.

^bFrom the Life Events Scale; BD with and without a MDD and controls $n = 16, 32,$ and $33,$ respectively.

^cFrom the CISS; BD with and without a MDD and controls $n = 18, 39,$ and $47,$ respectively.

^dFrom the ASSIS; BD with and without a MDD and controls $n = 18, 40,$ and $47,$ respectively.

^eFrom the DAS; BD with and without a MDD and controls $n = 15, 30,$ and $46,$ respectively.

^fFrom the CTS; BD with and without a MDD and controls $n = 15, 30,$ and $45,$ respectively.