



Preliminary communication

Attachment and temperament profiles among the offspring of a parent with bipolar disorder

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ABSTRACT

Introduction: Attachment is associated both with the risk of developing a mood disorder and temperamental profile. Relatively little is known about these associations in children of a parent with bipolar disorder (BD). The present study is a preliminary analysis of the association between attachment, temperament and psychopathology among high-risk offspring.

Methods: As part of an ongoing prospective cohort study, offspring from families with one parent with BD (HR) and offspring from families with unaffected parents (C) were clinically assessed using KSADS-PL format interviews annually. Validated self-report measures of perceived attachment and temperament were completed.

Results: Perceived attachment did not differentiate HR from C offspring and did not predict psychopathology or mood disorder in particular. However, high emotionality significantly predicted the risk of psychopathology in HR offspring, where 1 standard deviation increase in emotionality significantly increased the hazard of psychopathology by a factor of 1.36 ($p=0.0009$) and mood disorder by a factor of 1.24 ($p=0.02$).

Limitations: Use of retrospective measures and low sample size for some models.

Conclusions: There may be no gross abnormalities in attachment among HR compared to C offspring. It remains unclear if emotionality is a barometer of illness or a true risk factor in this population. More longitudinal research is needed to advance understanding of the influential pathways by which psychosocial risk factors impact the development of BD. This research has implications for targeted early interventions in HR youth.

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1. Introduction

Bipolar disorder (BD) is a severe, highly heritable, psychiatric illness associated with substantial impairment and mortality (Judd et al., 2008; Murray and Lopez, 1996). Offspring of parents with BD are at an increased risk of developing the disorder and related psychopathology (Delbello and Geller, 2001; Lapalme et al., 1997). BD likely develops through a complex interplay of genetic susceptibility and other risk factors (Heim and Binder, 2012), however, the etiology remains poorly understood.

Attachment formation is strongly linked to the development of mood disorders (Kessler et al., 2008; Smith et al., 2009) and is associated with parental psychiatric illness (Waters et al., 2000).

Attachment has not been systematically studied in offspring of a parent with BD.

A small number of cross-sectional studies have examined attachment using observational and self-report measurements in offspring of a parent with BD reporting higher levels of insecure attachment compared to control offspring of non-affected parents (DeMulder and Radkey-Yarrow, 1991; Radke-Yarrow et al., 1985; Zahn-Waxler et al., 1984). However, interpretation of these findings is difficult due to small sample sizes, a high burden of illness in the non-proband parent, and comorbid psychopathology such as high rates of borderline personality disorders in the proband parent introducing additional genetic and early environmental confounding factors. In contrast, Reichart et al. (2007) reported that offspring of a parent with BD perceived their parents in a positive way compared to the general population. In this study, most families were intact, well educated, and the other non-proband parent was typically psychiatrically well.

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Temperament is intimately tied to attachment either by influencing parent–child interactions early in life, or interacting with interpersonal style later in life and is associated with an elevated risk of psychopathology and mood disorder among offspring of a parent with BD (Duffy et al., 2007; Singh et al., 2008). The substantial morbidity associated with adult BD involves problems in interpersonal functioning (Rothen et al., 2009).

The current study examined self-reported attachment and temperament among the longitudinally studied offspring of a parent with BD compared to control offspring of well parents in an attempt to better understand the intermediate pathways linking genetic risk to illness onset in this population. Specifically, our objectives were: (I) to determine if perceived attachment differentiates high-risk (HR) from control offspring, (II) to determine the association between perceived attachment and risk of psychiatric disorder among HR offspring, and (III) to determine the influence of emotionality on the association between perceived attachment and psychiatric disorder in HR offspring.

2. Methods

2.1. Recruitment

HR offspring between the ages of 7–20 years were identified from affected parents participating in genetic studies which are described in detail elsewhere (Turecki et al., 1998, 2001). HR offspring were eligible if they had one parent with a confirmed DSM-IV diagnosis of BD I or II and no other major psychiatric comorbidity. In 21% of cases we included affected parents with BDI, BDII, or recurrent MD of the affected probands. The other biological parent had to be psychiatrically well at the time of recruitment. HR families were subdivided based on the proband response to long-term lithium treatment using standardized criteria (Turecki et al., 1998; Garnham et al., 2007). Control offspring between the ages of 7–20 were recruited from schools in Ottawa and were eligible if both parents had no history of major psychiatric illness. Offspring were excluded if they were unable to follow the study protocol. This study was approved by the local research ethic boards in Nova Scotia and Ontario. Specific details of this study are described elsewhere (Duffy et al., 2010).

2.2. Procedure

As part of an ongoing longitudinal study, after completing informed consent, all HR and control offspring were clinically assessed on average annually. All diagnoses in offspring and parents were based on (Kiddie) Schedule for Affective Disorders–Life Version (SADS-L/KSADS-L) format interviews conducted by a psychiatrist using all available clinical information and were confirmed through blind consensus review with two additional psychiatrists. Self-report measures of perceived attachment and temperament were collected in HR and control offspring. For this analysis, we used data from a subset of offspring ≥ 13 years, as the measure of attachment was only valid in adolescent or young adult participants. SES was collected using the Hollingshead SES scale (Hollingshead, 1971).

2.3. Measures

The Inventory of Parent and Peer Attachment (IPPA; Armsden and Greenberg, 1987) is a 25-item self-report measure of perceived attachment composed of three versions: perceived attachment to mother (IPPA_m), father (IPPA_f) and peers (IPPA_p). The IPPA has been shown to be a reliable and valid instrument of attachment (Armsden and Greenberg, 1987; Papini et al., 1991).

The 5-item emotionality subscale (e.g., “I react intensely when upset”) and 5-item shyness subscale (e.g., “I tend to be shy”) from the Early Adolescent Temperament Scale (EAS; Buss and Plomin, 1984) were used. The EAS subscales have shown acceptable reliability and validity (Mathiesen and Tambs, 1999; Rowe et al., 2007).

2.4. Statistical analyses

All analyses were adjusted for sex of offspring, sex of affected parent (in HR offspring only), SES and correlation within a nuclear family (except in cases where there were too few siblings, in which case an independent model was fit which is denoted (+)). No adjustments were made for multiple comparisons. The age at time of completion of the attachment measure was not significantly associated with perceived attachment score therefore was not adjusted for in analyses.

Adjusted linear models were used to examine total perceived attachment scores between groups, and to examine the influence on age of onset of any psychopathology. Adjusted Cox Proportional Hazard (CPH) models were used to examine the influence of perceived attachment on the risk of psychopathology and mood disorder. To determine the influence of emotionality, an interaction term of emotionality and perceived attachment was included in the CPH model. Linear models were checked for constant variance, normality, and outliers. CPH models were checked for proportionality. All analyses were conducted using SAS software (version 9.3).

3. Results

3.1. Description of the sample

Demographic information is presented in Table 1. The present analysis included 221 HR offspring (132 female, 89 male) and 63 control offspring (38 female, 25 male). Mean age at the time of completing the attachment measure was 21.60 (± 7.59) years for HR offspring and 16.49 (± 2.24) years for control offspring (age when completing the attachment measure was not significantly associated with attachment scores). Mean duration of follow-up was within a range of 0–16 years (Table 1).

Objective I: There was no significant difference in IPPA_m ($p=0.37$), IPPA_f ($p=0.12$), or IPPA_p ($p=0.10+$) between HR and control offspring.

Objective II: Perceived attachment to parents or peers in the HR offspring was not significantly associated with risk of psychopathology (IPPA_m: $p=0.58$, IPPA_f: $p=0.16$, IPPA_p: $p=0.56$). However, while IPPA_f and IPPA_p was not significantly associated with risk of mood disorder (IPPA_f: $p=0.57$, IPPA_p: $p=0.11$), there was a positive association between IPPA_m and risk of mood disorder among the HR offspring ($p=0.03$), likely reflecting a spurious finding (Table 2).

IPPA_m and IPPA_a did not significantly influence age of onset of psychopathology (IPPA_m: $p=0.28+$; IPPA_p: $p=0.17+$) or age of onset of mood disorder among HR offspring (IPPA_m: $p=0.19+$, IPPA_p: $p=0.43+$). However, positive IPPA_f was significantly associated with a lower mean age of onset of psychopathology ($p=0.04+$) also likely reflecting a spurious finding (Table 2).

There was no significant difference in IPPA_m ($p=0.59+$), IPPA_f ($p=0.22+$), and IPPA_p ($p=0.68$) between HR offspring of LiR compared to LiNR parents.

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