Journal of Affective Disorders 221 (2017) 246–253

Contents lists available at ScienceDirect

Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad

Research paper

Borderline personality and attention-deficit hyperactivity traits in childhood are associated with hypomanic features in early adulthood

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ARTICLE INFO

Keywords:
ALSPAC
Cohort study
Borderline personality disorder
Bipolar disorder
Hypomania
ADHD

ABSTRACT

Background: There is limited understanding of the symptomatic development of bipolar disorder from childhood to early adulthood.

Aims: We assessed whether borderline personality disorder traits, ADHD, and emotional, behavioural and social difficulties during childhood were associated with hypomania assessed in young adulthood.

Method: We used data from the Avon Longitudinal Study of Parents and Children (ALSPAC), to examine associations between measures of childhood psychopathology and lifetime hypomanic features assessed at age 22–23 years using the Hypomania Checklist-32 (HCL-32; n = 3372). We also conducted a factor analysis of the HCL to identify latent constructs underlying hypomania, and the extent to which childhood psychopathology was associated with these.

Results: We identified two factors of the HCL corresponding to energy/mood and risk-taking/irritability. There was evidence of association between childhood borderline personality disorder traits and both hypomania factors, with evidence that the association was stronger with the risk-taking/irritability factor. All individual borderline traits, with the exception of fear of abandonment, were associated with hypomania.

There was also evidence of association between most other measures of childhood psychopathology (ADHD, hyperactivity, conduct problems, peer relationship problems and reduced prosocial behaviour) and the risk-taking/irritability factor, but much less consistent evidence of association with the energy/mood factor.

Limitations: The HCL cannot diagnose bipolar disorder and may be subject to reporting bias.

Conclusions: A broad range of childhood psychopathologies may represent early markers of risk for hypomania. Further studies are required to understand the mechanisms underlying these associations, and to inform earlier detection of bipolar disorder.

1. Introduction

Bipolar Disorder (BD) is a complex affective disorder with a prevalence of 1–2% (Merikangas et al., 2007, 2011). A diagnosis of BD depends on a history of mania or hypomania (Anderson et al., 2013), but the accurate detection of hypomania can be difficult because individuals are more likely to present for help with depression and often have poor recollection of manic symptoms (Ghaemi et al., 1995). The identification of early clinical markers of bipolar disorder may help with improving diagnosis and treatment, but there is currently uncertainty about the extent to which features of childhood psychopathology might be considered as reliable predictors for the later development of BD (Faedda et al., 2014, 2015). Borderline personality disorder (BPD) and attention deficit hyperactivity disorder (ADHD) are relatively common comorbid diagnoses in people with BD and they share some clinical features in common. It is therefore possible that borderline personality disorder traits and/or features of ADHD in childhood might be predictive of BD in adulthood (Faedda et al., 2014).

In this study, we assess whether borderline personality disorder traits, a diagnosis of ADHD, or subscales of the Strengths and Difficulties Questionnaire (SDQ) (including hyperactivity, prosocial behaviour, emotionality, conduct problems and peer relationship difficulties) assessed during childhood might be early markers for hypomania within the prospective Avon Longitudinal Study of Parents and Children (ALSPAC) cohort. Specifically, we hypothesised that children with more BPD traits, ADHD, or higher hyperactivity subscale scores on the SDQ would have more features of hypomania assessed in early adulthood.

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http://dx.doi.org/10.1016/j.jad.2017.06.039
Received 18 January 2017; Received in revised form 8 May 2017; Accepted 17 June 2017
Available online 23 June 2017

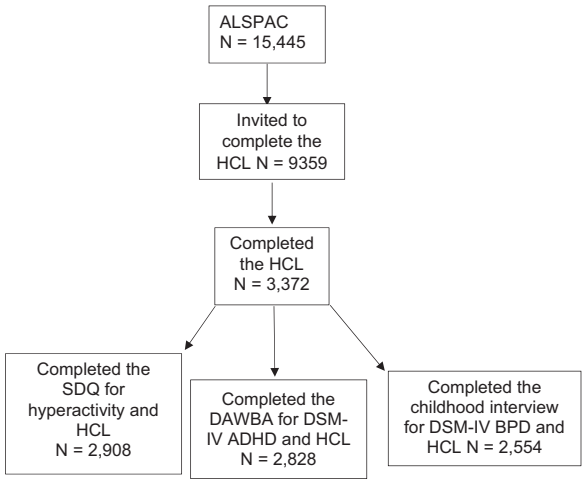

Fig. 1. Flow diagram for sample recruitment. ALSPAC, Avon Longitudinal Study of Parents and Children; Borderline personality disorder, BPD; Attention Deficit Hyperactivity Disorder, (ADHD); Strengths and Difficulties Questionnaire, SDQ; Development and Wellbeing Assessment, DAWBA; hypomania checklist, HCL.

2. Methods

2.1. Participants

ALSPAC (www.bris.ac.uk/alspac/) was set up in April 1991, comprising children born in the South West of England (Avon) between 1st April 1991 and 31st December 1992 (Boyd et al., 2013). These children are considered representative of children in the UK (Golding et al., 2001). At the beginning of the study, ALSPAC contained 15,445 participants (Boyd et al., 2013) with extensive baseline information from the first trimester of pregnancy onwards. Following this, clinics, assessments, and questionnaires were conducted from birth regarding family circumstances and the child's health. After the age of 7, the children were able to attend face-to-face interviews, from which a number of assessments were conducted assessing a variety of measures. The study website contains details of all the data, searchable through the data dictionary (www.bris.ac.uk/alspac/researchers/data-access/data-dictionary/). As with any cohort study of this kind, there has been a degree of attrition over time (see Fig. 1 for sample recruitment flow diagram). This study received ethical approval from the ALSAPC Law and Ethics Committee and Local Research Ethics Committees (http://www.bristol.ac.uk/alspac/researchers/research-ethics/).

2.2. Main outcome: hypomanic features

Hypomania features were assessed via postal and online questionnaires using the Hypomania Checklist 32 (HCL-32) when the cohort were 22–23 years of age. In total, 9359 participants were invited to complete the HCL-32, of whom 3448 (37%) returned the questionnaire. The HCL-32 is a self-rating questionnaire designed for a lifetime history of hypomanic symptoms. It has been used extensively, in clinical and non-clinical settings and is validated as a screening tool for bipolar disorder type II (Angst et al., 2011; Carta et al., 2006; Forty et al., 2009; Meyer et al., 2014).

A Rasch analysis for unidimensionality of the HCL-32 was recently conducted within a sample of 389 individuals with DSM-IV BD from the Bipolar Disorder Research Network (Court et al., 2014). Four items were identified as redundant and could be excluded. In our study we have therefore used only 28 items from the HCL-32 to calculate a dimensional measure of hypomania (Court et al., 2014).

Furthermore, in line with previous literature, we also examined presence of hypomania as an outcome, which was defined as a threshold score of ≥14/32 on the HCL, plus a duration of 2–3 days or more, and a response of either negative, or negative/positive impact of highs on family life, social life, work life and leisure (Angst et al., 2005, 2011).

3. Childhood predictors: borderline personality disorder traits, ADHD and SDQ sub-scales

3.1. Assessment of borderline personality disorder traits

At age 11 years, the cohort was interviewed to assess their experience of borderline personality disorder traits over the preceding two years. The interview was conducted by trained psychologists using the Childhood Interview for DSM-IV Borderline Personality Disorder (CI-BPD), a semi-structured interview designed to assess BPD traits in latency-age children and adolescents, which has been adapted for use in this cohort (Zanarini et al., 2004). The CI-BPD is based on the borderline module of the Diagnostic Interview for DSM-IV Personality Disorders (Zanarini et al., 1996). The convergent validity of the CI-BPD has been shown to be significantly associated with clinician diagnosis and other measures of borderline personality disorder reported by patients and parents (Sharp et al., 2012). It contains nine borderline personality disorder traits (anger symptoms, affective instability, emptiness, identity disturbance, paranoid ideation, abandonment, suicidal behaviour, impulsivity and intense interpersonal relationships). Judgements were made by a trained assessor and rated as absent, probably present or definitely present (coded as 0, 1 and 2 respectively). To meet criteria for definitely present, the trait had to be present at least 25% of the time (or daily). A probably rating required the trait to be present regularly but not as often as definitely.

Individuals in the present study were classified as being 'high risk for borderline personality disorder' if they were rated 'probably' or 'definitely' on 5 or more of the nine items, as used previously (Wolke et al., 2012). We also derived a score for borderline personality disorder traits by summing the 9 items (range from 0 to 18) and then standardised this score.

3.2. Assessment of childhood ADHD status

The presence of ADHD was assessed in 8219 children using the Development and Wellbeing Assessment (DAWBA) based on parent ratings when the children were aged 91 months (7.6 years) (see Fig. 1) (Goodman et al., 2000). This assessed the presence of psychiatric disorders including ADHD, which was rated as absent or present (coded as 0 and 1 respectively).

3.3. SDQ subscales

We also examined all five SDQ subscales (hyperactivity, prosocial behaviour, emotionality, conduct problems and peer relationship difficulties). The SDQ had been completed by parents when their children were aged 115 months (9 years) (see Fig. 1). Each SDQ raw score was standardised for ease of interpretation (Goodman, 1997).

3.4. Statistical analyses

Statistical analysis was performed using Stata version 14 (http://www.stata.com/). Linear regression was used to compare associations between our exposures (BPD traits, ADHD and SDQ sub-scale scores) and outcome (hypomania score). A Kernel density plot of the residuals showed normal distribution of the residuals and tests for heteroskedasticity showed homogeneity within the sample. Alpha level used was 0.05.

3.5. HCL-28 confirmatory factor analysis

Previously, several studies used exploratory factor analysis to