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ScienceDirect

Comprehensive Psychiatry 69 (2016) 45–52

COMPREHENSIVE PSYCHIATRY

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Association between childhood psychiatric disorders and psychotic experiences in adolescence: A population-based longitudinal study

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Abstract

Background: Adolescent psychotic experiences (PEs) are common, and are associated with both psychotic and non-psychotic illnesses. In order to examine psychopathological and cognitive antecedents of adolescent PEs, we have conducted a longitudinal study of common childhood psychiatric disorders and subsequent adolescent PEs in the population-based prospective ALSPAC birth cohort.
Method: Depression, anxiety, attention deficit hyperactivity disorder, oppositional defiant or conduct disorder, and pervasive developmental disorder were diagnosed according to DSM-IV criteria in 8253 participants at age 8 years. IQ was assessed by WISC-III also at 8 years. PEs, depressive and anxiety symptoms were assessed at 13 years. Logistic regression calculated odds ratio (OR) for PEs at 13 years associated with psychiatric disorders at 8 years. Linear regression calculated mean difference in IQ between groups with and without psychiatric disorder. Mediating effects of IQ, mood and anxiety symptoms on the psychiatric disorder-PEs relationship were examined.
Results: In total, 599 children were assessed to have a DSM-IV psychiatric disorder at 8 years (7.2%). These children compared with those without any psychiatric disorder performed worse on all measures of IQ; adjusted mean difference in total IQ −6.17 (95% CI, −7.86, −4.48). Childhood psychiatric disorders were associated with PEs subsequently in adolescence; adjusted OR 1.96 (95% CI, 1.47–2.68). The association between psychiatric disorder and subsequent PEs was partly mediated by, independently, IQ deficit at 8 years and depressive and anxiety symptoms at 13 years.
Conclusions: The findings indicate that adolescent PEs are associated with general cognitive ability and past and present psychopathological factors.

1. Introduction

Psychotic experiences (PEs) are common in the general population [1], especially during childhood and adolescence [2]. Early-life PEs are associated with increased risk of psychosis in adulthood [3,4] as well as a number of established risk factors for schizophrenia including family history of psychosis, cannabis use, maltreatment, advanced paternal age, IQ deficit, prenatal and childhood infection, and other immunological factors [5–15]. However, recent studies suggest that PEs can no longer be regarded as having predictive specificity for psychotic disorders subsequently in adulthood [16,17]. PEs are associated with a range of non-psychotic common mental disorders both cross-sectionally and longitudinally. PEs in adolescence or adulthood are associated with concurrent anxiety, depression, obsessive compulsive disorder, borderline personality disorder, poor functioning, self-harm and suicidal behavior [18–23]. These findings are consistent with statistical modeling of the underlying structure of psychiatric symptoms in two birth cohorts which reveal that psychotic phenomena co-occur with depression and anxiety [24,25], and may be a marker of the severity of mental ill health in a single, unitary dimension of common mental distress in young people [25].

Longitudinal studies suggest that PEs are associated with a range of psychiatric disorders subsequently in adulthood including obsessive compulsive disorder, social phobia,

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http://dx.doi.org/10.1016/j.comppsych.2016.05.004

dysthymia, bipolar disorder, post-traumatic stress disorder, and suicidality [16,17]. Persistent childhood PEs are associated with subsequent internalizing and externalizing psychopathology in the general population [26]. Reports from the Avon Longitudinal Study of Parents and Children (ALSPAC) birth cohort [27,28], including our own [5], have shown an association between childhood neurodevelopmental disorders and risk of PEs in early-adolescence, which is partly mediated by childhood IQ deficit [5]. However, to our knowledge no population-based longitudinal study has examined the relationship between common mental disorders of childhood diagnosed according to clinical criteria and risk of PEs subsequently in adolescence. Building on our previous work we have examined psychopathological and cognitive antecedents of adolescent PEs using a broader range of childhood psychiatric disorders as predictors of subsequent PEs in early-adolescence in the ALSPAC birth cohort. We hypothesized that psychiatric disorders at age 8 years would be associated with increased risk of PEs at age 13 years. The use of clinical diagnoses of depression, anxiety, oppositional defiant/conduct disorder, attention deficit hyperactivity disorder and pervasive developmental disorder at age 8 years defined according to DSM-IV criteria as predictors of PEs at age 13 years – as opposed to parent-reported neurodevelopmental disorders at age 10 years used in the previous study [5] – makes the current analysis unique. We have also examined mediating effects of IQ at 8 years, and depressive and anxiety symptoms at 13 years on the relationship between psychiatric disorder at 8 years and PEs at 13 years.

2. Method

2.1. Sample

The ALSPAC birth cohort is based on all pregnant women resident in the county of Avon, a geographically defined region in the southwest of England, with expected dates of delivery between April 1991 and December 1992 (http://www.bristol.ac.uk/alspac/). The initial ALSPAC cohort consisted of 14,062 live births and 13,988 infants still alive at 12 months [29,30]. Avon included both urban and rural areas, and the population was broadly representative of all children in the UK. The parents completed regular postal questionnaires about all aspects of their child's health and development since birth. Since the age of 7 years the children attended an annual assessment clinic during which they participated in a range of face-to-face interviews and physical tests. The current study is based on 8253 individuals who were assessed for psychiatric disorders at age 8 years. The numbers of individuals with data on IQ at 8 years and psychiatric symptoms at 13 years vary as these tests were completed by different numbers of people.

Ethical approval for the study was obtained from ALSPAC Ethics and Law Committee and the Local Research Ethics Committees.

2.2. Assessment of psychiatric disorders at 8 years

Psychiatric disorders were assessed at age 8 years using the parent version of the Development and Well-Being Assessment (DAWBA) [31] and were coded according to DSM-IV criteria by two experienced psychiatrists [32]. The DAWBA consists of a package of questionnaires that are aimed at establishing the presence of relatively common emotional, behavioral, and hyperactivity disorders in children. It has been validated for use in epidemiological studies in the UK, where it has been used for the child and adolescent mental health survey [33], and internationally [34,35].

A postal questionnaire containing the parent-version of the DAWBA was sent to mothers when the study child was on average about 8 years old. The parent-completed DAWBA-questionnaire constituted the primary source of information for the diagnosis of psychiatric disorders. Where available, complementary sources of information on a child's emotional and behavioral characteristics were consulted, which included: (i) the teacher version of the DAWBA that addressed potential hyperactivity and conduct disorder at 8 years; (ii) the teacher version of the Strengths and Difficulties Questionnaire (SDQ) at 8 years [36]; (iii) parent completed SDQ at 7 years; (iv) basic reading and spelling competency of the child at age 7 years; and (v) IQ at age 8 years using the Wechsler Intelligence Scale for Children (WISC III, 3rd UK edition) [37]. Psychiatric diagnoses were thus based on a wealth of developmental data gathered from different sources. Diagnoses were made for attention deficit hyperactivity disorder (ADHD), oppositional or conduct disorder (OpCD), pervasive developmental disorder (PDD), anxiety disorder, and depressive disorder. The presence of any DSM-IV psychiatric disorder at 8 years, coded as a single binary variable, was used as the main predictor. Those without a diagnosis were included in the comparison group. Additional analyses were carried out using individual diagnostic categories as predictors, which included all participants without the particular diagnosis in the comparison group. For example, children with depression who did not have ADHD were included in the comparison group for the analyses of ADHD, and so on.

2.3. Assessment of IQ at 8 years

Full scale, verbal, and performance IQ were measured by the WISC III, 3rd UK edition [37]. A shortened version of the test was applied by trained psychologists, whereby alternate items (always starting with item number 1 in the standard form) were used for all ten subtests with the exception of the coding subtest which was administered in its standard form. Use of the shortened version reduced the length of assessment so the children were less likely to tire. This approach has been successfully used in other studies [5,38,39]. IQ data obtained using this method have shown robust correlations with neurodevelopmental disorders, and other concurrent neurocognitive measures such as working