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Psychotic-like experiences and associated socio-demographic factors among adolescents in China

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ABSTRACT

Objective: Adolescents with persistent psychotic-like experiences (PLEs) may be at high risk for later development of psychoses. Exploring early age risk factors for PLEs may provide useful information for prevention of mental disorders and improvement of mental health.
Method: A total of 5427 adolescents (aged between 10 and 16) participated in a cross-sectional survey, with social and demographic information collected. The Positive Subscale of Community Assessment of Psychic Experiences (CAPE) was used to measure PLEs, and the CAPE Depressive and Negative Subscales were used to examine depressive and negative experiences. The Trauma History Questionnaire (child version) was used to assess experiences of previous traumatic events.
Results: In our study, 95.7% of the adolescents reported more than one episode of PLEs, while 17.2% reported "nearly always" having PLEs. High positive correlations were shown both between frequency scores among experiences of three dimensions (PLEs, depressive and negative experiences), and between frequency and distress scores. Factors associated with a higher risk for more frequent and distressing PLEs include: urban setting, family history of psychiatric illnesses, and higher impact from previous traumatic events at present.
Conclusions: Episodes of PLEs are common in Chinese adolescents, however only a small proportion have persistent PLEs, with worsening distress as the frequency increased. PLEs shared similar environmental and genetic risk factors not only with the clinical phenotypes, which is consistent with the continuity model of PLEs, but also with depressive and negative experiences, which may imply etiologic relation between different dimensions of psychosis at the subclinical level.

1. Introduction

Psychotic-like experiences (PLEs) are common in childhood and adolescence, and mostly transient in nature. However, it may persist in a small population before developing further into clinical psychoses (van Os et al., 2009; Dominguez et al., 2011). Data shows that nearly half of all lifetime mental disorders start by mid-adolescence (Kessler et al., 2005, 2007), which indicates that adolescence is an important period in development of mental disorders. Therefore, exploring the risk factors of PLEs at this early age may provide useful information in understanding the development of mental disorders and throw light on the prevention of mental disorders.

PLEs are defined as experiences that resemble the positive symptoms of psychosis as encountered in clinical samples but which do not cause the levels of distress or impairment that would lead to clinically significant distress, disability or loss of functioning. Two continuity models have been proposed on PLEs. The quasi-dimensional model conceptualizes PLEs as forme frustes or variants of mental disorders (Meehl, 1962, 1989), while the fully dimensional model of psychosis proposes that PLEs are part of personality (Claridge, 1972, 1994). Preliminary evidence has suggested that in a minority of individuals PLEs in childhood and adolescence may be risk factors for later psychiatric disorders and poor psychosocial outcome (Dhossche et al., 2002; Hanssen et al., 2005; Kaymaz et al., 2012). The risk for transition to psychosis is associated with the degree of PLEs' persistence, associated distress, and the severity of PLEs (Wigman et al., 2011). However, few studies have explored the associated psychosocial factors and psychopathological difficulties in young people at a crucial age (Lataster et al., 2006; Nishida et al., 2008; Armando et al., 2012; Fisher et al., 2013).

In order to assess the prevalence of PLEs in our study, we selected the Positive Subscale of Community Assessment of Psychic Experiences

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(CAPE). Previous research found that there was evidence for the existence of PLEs and depressive and negative experiences in the general population and significant correlations between them, which suggest they may share similar risk factors (Stefanis et al., 2002). Longitudinal studies also show psychosis proneness is strongly associated with depression, suggesting that a continuum of vulnerability may exist between psychotic disorders and affective disorders (Verdoux et al., 1999). Therefore we also explored characteristics and risk factors of the depressive and negative experiences with Depressive and Negative Subscales of CAPE.

During the past 30 years, there is a massive migration of residents of rural areas to work in the urban areas in China. By the end of 2013, the number of internal migrants in China amounted to 245 million. As a result, there are many "left-behind" children, referring to the children and adolescents left behind in hometown by one or both of their migrating parents (Jia and Tian, 2010). Recent estimates place the number of "left-behind" children in China as approximately 58 million (Jia and Tian, 2010; Ding and Bao, 2014). They endure severe stress caused by migration of parents. Data from recent studies show that they are at greater risk for developing mental disorders (He et al., 2012; Wang et al., 2014). In regard to urbanization, studies have demonstrated that being raised in urban area confers a greater risk of psychiatric disorders (Pedersen and Mortensen, 2001; Peen et al., 2010). Previous studies have indicated ethnic minority as a risk factor of PLEs (Morgan et al., 2009). Finally, a few studies have found positive correlation between childhood trauma and PLEs (Jeronimus et al., 2013; Matheson et al., 2013).

Our study has two main aims. First, we would like to investigate the prevalence and characteristics of PLEs and depressive and negative experiences among adolescents in Hunan Province, China. Second, some potential genetic and environmental factors associated with more frequent and distressing PLEs were explored in order to provide useful information for mental disorder prevention.

Unlike previous studies that usually evaluate childhood traumas in adulthood, our study evaluated the impact of childhood traumas during the period of childhood and adolescence, which may be more relevant. Besides, in order to identify children's distress in the acute aftermath of traumatic events, our study included their impact felt by the children, both at the time of the event and at the survey.

2. Method

2.1. Sample

Eleven Middle schools in both Xiangxi Region and Changsha City of Hunan Province were sampled using random cluster method. A total of 5427 students of the first grade from Middle schools were surveyed. All participants and their parent/guardian gave written consent for the study. In general, it took 45 min for the students to fill in the questionnaires. The study was approved by the Ethics Committees of the Second Xiangya Hospital of Central South University.

2.2. Instruments

Socio-demographic information to be collected included: gender, age, ethnicity, boarding options, residency status, sources of income, "left-behind" child status, divorced family, parental death, single child status, family history of psychiatric illnesses and past history of any psychiatric conditions for participants. Exclusion criteria for the study include participants with history of any psychiatric conditions and who had >25% of CAPE data missing. We excluded the children with history of psychiatric conditions according to the socio-demographic information in the questionnaires and provided by schools and teachers.

The CAPE was used to evaluate the lifetime positive, depressive and negative experiences in the general population (Stefanis et al., 2002; Konings et al., 2006). This self-report instrument consists of 42 items covering positive, depressive and negative dimensions (PD, DD and ND) on both a frequency scale (1 = never, 2 = sometimes, 3 = often, 4 = nearly always) and a distress scale (1 = not distressed, 2 = a bit distressed, 3 = quite distressed, 4 = very distressed). It includes 20 items of positive psychotic experiences derived from Peters et al. Delusions Inventory (PDI-21) (Peters et al., 1999), 14 items exploring negative experiences derived from an instrument of subjective experience of negative symptoms (SENS) (Selten et al., 1998), and 8 cognitive depressive experiences (Kibel et al., 1993). Previous results have indicated the CAPE to be stable, reliable and valid (Konings et al., 2006). In our study, PLEs were measured through items of PD in the CAPE, while depressive and negative experiences used items of DD and ND, respectively.

To assess adolescents' histories of trauma, the Trauma History Questionnaire (THQ) child version (Stover et al., 2010) was used. The scale contains 15 items. Each item was designed to assess the child's history of traumatic events in the lifetime as well as the level of impact on the child, both at the time of the event and at present. Respondents can select a number from "not at all (0)" to "extremely (4)".

Both the Chinese version of CAPE and THQ child version were translated and validated for the first time. Both questionnaires showed good reliability and validity. The papers on the reliability and validity are now under preparation.

2.3. Analyses

Analyses were conducted using IBM SPSS Statistics version 19.0. Descriptive statistics were performed for group characteristics. The prevalence was calculated both at the level of "at least sometimes" and "nearly always" respectively in all three dimensions. Frequency of each item was also counted. Correlation analysis was conducted through Pearson's correlation coefficient to investigate associations between frequency scores among the three dimensions, and then between frequency and distress scores.

Due to the lack of generally acknowledged cut-off points separately in three dimensions, hierarchical linear cluster analyses were performed on the sample to get high, medium and low score groups. The whole sample was divided into three clusters according to both frequency and distress scores of each dimension, respectively. The same statistical method was also used for the THQ to divide the sample into three groups, respectively according to the level of impact at the time of the event and at present. To investigate the predictors of more frequent and distressing PLEs and depressive and negative experiences, we conducted ordinal logistic regression analyses to calculate odds ratios (ORs) and 95% confidence intervals (95% CI). We entered all dichotomous socio-demographic variables and levels of impact from previous trauma as independent variables, using age as covariate variable. We considered p-value less than 0.05 to be statistically significant.

3. Results

3.1. Description of the sample

All 5427 students agreed to participate in our survey. A total of 131 participants who had >25% of CAPE data missing and 23 participants who had history of psychiatric conditions were subsequently removed from further analyses, leaving 5273 with valid data. These participants were aged between 10.0 and 16.6 years, and mean age was 12.6 years (SD = 0.627). Table 1 shows some of the other social-demographic characteristics.

3.2. Characteristics of experiences of three dimensions in the sample

Almost all the adolescents in our sample experienced at least one CAPE item during lifetime (entire CAPE = 98.50%, PD (PLEs) = 95.66%, DD = 95.01%, ND = 94.06%). However, prevalence decreased sharply when the frequency increased to "nearly always" (entire

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