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# Psychotic-like experiences, trauma and related risk factors among "left-behind" children in China

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ABSTRACT

*Background:* Large scale migration of workers due to wage differences across regions of China has separated millions of children, called "left-behind children" from their parents. Psychotic-like experiences (PLEs) are thought to be associated with childhood deprivation and may predict later psychotic disorders but have not been studied in this potentially vulnerable population.
*Methods:* Data were collected from representative samples of students in thirteen middle schools in the Xiangxi region and Changsha city of Hunan province (N = 6623), of whom 1360 (21.3%) were "left-behind" children. Children were surveyed with the positive frequency subscales of the Community Assessment of Psychic Experiences and the Trauma History Questionnaire child version.
*Results:* More "left-behind" children reported experiencing PLEs than others. They also scored higher on the overall frequency of PLEs, severity of childhood trauma, and the subjectively perceived psychological impact of trauma both at the time of the events and at present. Compared with "left-behind" children raised by a parent or by grandparents, those raised by others reported suffering more severe impact both at the time of the events and at present. Among "left-behind" children trauma history was the most important correlate of PLEs followed by Han ethnicity, older age, and not having a stable family income.
*Conclusion:* "Left-behind" children are at higher risk for PLEs and suffer more traumatic events than other Chinese children. Interventions that reduce trauma risk and improve relationships with caregivers may be helpful, especially for older "left-behind" children.



## 1. Introduction

Since 1978 when the Chinese government implemented market reforms and the opening-up of the economy to foreign trade, millions of young adults have migrated each year from their homes in poor areas to higher-income regions in search of better paying jobs and life opportunities (Wang et al., 2015). By the end of 2013, the number of such internal migrants has reached 245 million. One consequence of this migration is that most migrants have to leave their children, now numbering 61 million, in their home communities (Guo et al., 2012), because as children of migrants, they would face prohibitively high barriers to receipt of educational services and medical care in the cities to which their parents relocated (Ding and Bao, 2014). After being left behind, parents seldom come back to visit because of heavy work schedules and the relatively high cost of traveling home. These parents return to visit their children only once or twice a year at the time of traditional holidays and typically communicate with their children no more than once or twice a month, typically by telephone.

According to Bowlby's attachment theory, the quality and consistency of the experience of a secure parental base is internalized by the child as a crucial mental representation of a positive attachment relationship. This internalization forms the basis of the sense of stability and security children need to grow and develop (Bowlby, 1969, 1982), a sense that is deeply influenced by early caregiving experiences (Waters et al., 2016). During the formative years, attachments tend to be dependency relationships characterized by a drive to maintain physical proximity to a primary caregiver. Disruptions of physical proximity may shake a child's

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sense of security causing significant and long-lasting psychological distress (Armsden and Greenberg, 1987; Vanore et al., 2014). Parents who migrate at this stage leave their children when they are especially in need of a stable environment, potentially leading to adverse consequences including a subjective sense of abandonment, confusion about who to look to for parental support; feelings of emotional vulnerability; and exposure to violence from both primary and surrogate caregivers (Graham and Jordan, 2011). Previous research has documented higher prevalence of psychological and behavioral problems among "left-behind" children (Cheng and Sun, 2015; Fan et al., 2010; Gao et al., 2010; Qu et al., 2015; Shen et al., 2015; Wang et al., 2015).

However, few studies have focused on major psychiatric sequelae of parental separation and childhood trauma among "left behind" children and specifically, on psychotic-like experiences (PLEs), experiences that are judged to be potential risk factors for later psychotic disorders (Kaymaz et al., 2012). Several factors have been found to mediate the association between childhood trauma and PLEs including depressive symptoms, low self-esteem, loneliness, elevated emotional sensitivity and lack of resilience in response to stress (Fisher et al., 2013; Murphy et al., 2015; Reininghaus et al., 2016), These factors are all more likely to be found among "left-behind" children (Wang et al., 2015; Zheng and Zheng, 2015).

As the baseline phase of a longitudinal study, we sampled first grade students from middle schools in Hunan Province, one of the most prominent geographical sources of migrant labor (Huang et al., 2015). Since, according to the fifth population census in China, 13.5% of all "left-behind" children come from urban areas (Ge et al., 2015) we sampled children from both the Xiangxi rural region and from poor areas of the Changsha city a major metropolis in Hunan province.

We thus sought to evaluate the relationship between "left-behind" child status, and other risk factors as predictors of PLEs hoping to identify serious risk factors that could be targets for future intervention to prevent avoidable mental disorders.

## 2. Methods

### 2.1. Participants

We sampled first grade students from thirteen middle schools (including twelve junior middle schools and one senior middle school) in both the largely rural Xiangxi Region and in Changsha City of Hunan Province. All participants and at least one parent/guardian gave written informed consent to participate in the study. The baseline survey took 45 min for students to complete. One researcher was assigned to each classroom. They distributed one questionnaire to each student, and stayed in the classroom to answer procedural questions. The questionnaires were sealed in an envelope immediately after completion and were kept entirely confidential. The investigation was carried out in accordance with the latest version of the Declaration of Helsinki and approved by the Ethics Committees of the Second Xiangya Hospital of Central South University.

### 2.2. Instruments

We used the positive frequency subscale of Community Assessment of Psychic Experiences (CAPE) (http://cape42.homestead.com/index.html) to evaluate lifetime PLEs (Konings et al., 2006). The positive subscale of the CAPE includes 20 items representing positive psychotic experiences derived from the Peters Delusions Inventory (PDI-21) (Peters et al., 1999). As some items are quite common (such as "Have you ever felt as if you are destined to be someone very important?"), especially among children, or are redundant, representing similar symptoms (such as "Have you ever heard voices talking to each other when you were alone?" and "Have you ever heard voices when you were alone?"), we selected 8 items distinctively reflecting actual hallucinatory and delusional experiences (HEs and DEs). Among these items, six items were related to DEs, and two were related to HEs. (Table 2) Item selection was guided by previous research (Arseneault et al., 2011; McGrath et al., 2015; Schreier et al., 2009).

The Trauma History Questionnaire (THQ), child version (Berkowitz et al., 2011; Stover et al., 2010), contains 15 items, derived from Traumatic Events Screening Inventory - Child and Parent Report (TESI) (Ghosh-Ippen et al., 2002). Each item was designed to assess the child's history of lifetime traumatic events as well as the level of emotional impact on the child, both at the time of the event and at present. Respondents were thus asked to choose whether they have experienced each specific traumatic event (0 = No, 1 = Yes) as well as to rate the strength of its impact using a number from "0 = not at all" to "4 = extremely," both at the time of the trauma and at the time of the current assessment.

Both the CAPE and THQ versions for child respondents were translated into Chinese and validated specifically for this study. Both questionnaires showed good reliability and validity. A separate paper on the reliability and validity of the Chinese translations is now under preparation.

Children were classified into three groups according to their current main caregivers (one parent, grandparents or others). Besides "left-behind" status and classification of principal caregivers, other socio-demographic information included: gender, age, ethnicity, residential status, sources of family income, single child status, family history of psychiatric disorders and past history of any psychiatric conditions diagnosed among the informants.

Exclusion criteria for the study include participants with a history of a prior psychiatric condition or who did not complete the specified items in CAPE. We also excluded children with a past history of diagnosed psychiatric conditions as reported in supplemental questionnaires that were completed by school officials and teachers.

### 2.3. Analyses

First, descriptive statistics were used to compare the significance of differences between "left-behind" children and others on socio-demographic characteristics and residential status using *t*-tests and Chi-square tests.

Next, the frequency of reports of specific PLEs and of any PLE's was compared between "left-behind" children and "non-left-behind" children. Binary logistic regression was used for these dichotomous comparisons controlling for significant differences in socio-demographic variables. The stepwise method used entry at 0.05 and removal at 0.10.

Next items on the THQ were summarized to represent three measures of trauma: the number of past traumatic events, the severity of perceived emotional impact at the time of the traumatic event and the severity of impact as experienced at present. The total number of PLEs, traumatic events, and average impact both at the time of the traumatic event and at present were compared between "left-behind" children and "non-left-behind" children using ANCOVA, controlling for significant differences in socio-demographic variables.

A further set of analyses compared these same 4 measures among three groups of "left-behind" children: those living with one parent, those living with grandparents and those living with others (other relatives or non-family members).

To investigate the independent association of correlates of PLEs among "left-behind" children, multiple linear stepwise regression analyses were conducted to calculate unstandardized coefficients (B), 95% confidence intervals for B (95% CI) and standardized coefficients (β). The stepwise method was used with an entry criterion of 0.05 and a removal criterion of 0.10. All dichotomous socio-demographic variables, age and history of traumatic events were used as independent variables in a model of the number of PLEs. The variance inflation factor (VIF) was used for assessment of multicollinearity.

We considered two-sided p-values less than 0.05 to be statistically significant. Analyses were conducted using IBM SPSS Statistics version 19.0.

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