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Association between migrant worker experience, limitations on insurance coverage, and hospitalization for schizophrenia in Hunan Province, China

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ABSTRACT

Background: While transnational migration has been shown to be a risk factor for schizophrenia, studies have not examined whether massive internal rural-to-urban migration in China in recent years has increased the risk of hospitalization for schizophrenia, or schizophrenia symptom severity among migrants.

Method: In a sample of patients acutely hospitalized with schizophrenia in Changsha, Hunan Province, China (N = 334), the proportion of past migrant workers among patients was compared to the proportion of past migrant workers in the general adult population of Hunan. Past migrants were also compared to non-migrants on age of onset, and on symptom severity using the Positive and Negative Syndrome Scale (PANSS). The risk ratio for being a migrant among those hospitalized for schizophrenia was stratified by age and gender subgroups. Multiple regression analysis was used to evaluate group differences in age of onset and symptoms.

Results: Of 334 patients diagnosed with schizophrenia hospitalized for <180 days, 150 (44.9%) were identified as having been migrant workers compared to 31.0% in the general adult population of Hunan for a risk ratio of 1.45, a risk that was higher for women (2.19) than for men (1.09). Migrant workers also had higher scores than others on total PANSS symptoms.

Conclusion: Migrant workers appear to be at greater risk of hospitalization for schizophrenia than other residents of Hunan and showed more severe psychopathology. These findings may reflect specific lack of health insurance coverage for workers migrating to non-native provinces in China, thereby delaying access to treatment.

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1. Introduction

Previous studies have provided evidence of increased risk of schizophrenia among migrants, albeit with significant variation, suggesting that migrant status, along with male gender and urbanicity, may increase the incidence of schizophrenia (Ødegaard, 1932; Zolkowska et al., 2001; Selten et al., 2001; Selten et al., 2007). While many studies have focused on international migrants, few have examined the relative risk of hospitalization for schizophrenia among migrant workers moving from rural to urban settings domestically.

It is estimated that there are 277.5 million rural-to-urban migrant workers in China, 25.39% of the adult population older than 16 (National Bureau of Statistics of China, 2015) (China, 2015). Previous studies have indicated that Chinese migrant workers are a marginalized group who live highly stressful lives in the cities where they seek employment. Wong et al. identified five main dimensions of social adversity experienced by internal migrant workers in China: poor working conditions, lack of social welfare benefits and/or health insurance, sub-standard housing, difficulty providing education or medical care for their children, and discrimination (Wong et al., 2008). Since many characteristics of social distress among internal migrants are similar to those of transnational migrants, we hypothesized that internal migrant workers in China may similarly experience an increased risk for developing schizophrenia as reflected in an earlier age of onset. In addition, internal migrants in China with diagnoses of schizophrenia may be more likely to

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require hospitalization and may manifest more severe clinical symptoms, and experience a worse prognosis than non-migrants, since their health insurance, based in the province of their birth, most typically does not cover them for evaluation or treatment outside of their native province, potentially imposing serious delays on their access to care in cities to which they have migrated.

Studies have also demonstrated an association between childhood trauma and the severity of the psychopathology of schizophrenia (Morgan and Fisher, 2007; Read et al., 2005; Schafer and Fisher, 2011). It is therefore also possible that there are interactive effects of migration and childhood trauma on the psychopathology of schizophrenia, such that a combination of internal migration and childhood trauma may further increase the risk of having an episode of schizophrenia and/or on the severity of symptoms among those affected. To the best of our knowledge, studies have yet to examine this potential interaction.

Hunan province, located in central China has the second largest population of domestic migrants in China, with an estimate of 16.8 million in 2013, 31.1% of the adult population (Hunan, 2013). The present study used data from a sample of patients acutely hospitalized with schizophrenia at four psychiatric hospitals in Changsha, the capital city in Hunan Province, which has a population of 7 million residents. The four hospitals studied here are the major providers of psychiatric hospital care for the entire Province. The goal of this study was to explore the association between the experiences of both internal migration and childhood trauma and with the risk of hospitalization for schizophrenia in their home province, as well as greater severity of schizophrenia symptoms among those hospitalized. We hypothesized that compared with hospitalized patients with schizophrenia who had not migrated, migrant workers would have an earlier onset of schizophrenia reflecting stresses before and during migration; greater likelihood of being hospitalized for schizophrenia in their native Hunan province, reflecting the lack of insurance and poorer access to treatment in the city to which they had migrated; and among those hospitalized, more severe psychopathology reflecting both more severe pre-morbid stressors, poorer access to health services and therefore a greater duration of untreated psychosis. We also hypothesized that the greater exposure to childhood trauma would increase the level of symptom severity in interaction with migration status.

2. Material and methods

2.1. Participants

A total of 749 patients diagnosed with schizophrenia using DSM-IV criteria (First et al., 1997) were recruited by trained psychiatric interviewers from four hospitals in Changsha, as part of a descriptive study of Chinese inpatients diagnosed with schizophrenia (Wu et al., 2013). Of these, 334 patients were acutely hospitalized as indicated by a length of stay of <180 days ($N = 334$). Patients were excluded if they showed evidence of mental retardation or history of neurological illness, brain injury, or substance-related disorders. Demographic and clinical data were collected through interviews of patients and members of their families and were cross-checked with relevant data from patients' medical records.

Patients were classified into two groups according to whether or not they reported that they had been migrant workers from rural areas at the time of onset of schizophrenia. If the psychotic symptoms first occurred at least one year after the reported migration, the patient was classified as a member of the migrant group. If the patient did not have any migrant worker experience, they were classified in the non-migrant group. They were also classified in the non-migrant group if they developed psychotic symptoms: a) before migrating, or b) before they had experienced one year of residence in the city to which they migrated, or if they c) developed psychotic symptoms after returning home from migrating.

2.2. Government definition of migrant workers

Rural migrant workers (Nongmin Gong) are defined by the National Bureau of Statistics of China as labor force participants who moved from rural to urban areas through internal migration both within and across provinces.

2.3. Health care insurance coverage in China: home province vs. migrant residence

Since health insurance in China, and the rural cooperative medical scheme, in particular, provides more extensive coverage for care provided in the Province of one's birth as contrasted with other provinces (Qiu et al., 2011), patients experiencing psychiatric symptoms or even a full-blown episode of schizophrenia in provinces to which they had migrated, may only receive treatment after their return to their home province. While it is unfortunate that the research protocol for this study did not document either the city of each patient's birth or the province to which they had migrated, the vast majority of migration in Hunan province is outside the province to large coastal cities in other provinces. We therefore made the assumption that most migration was to cities outside of Hunan province in which health insurance coverage was limited for people born in Hunan (Qiu et al., 2011).

2.4. Ethics

All participants gave their written informed consent to participate in the study after the research protocols were explained in detail. The study was approved by the ethics committee of the Second Xiangya Hospital, Central South University.

2.5. Measures

A structured questionnaire was administered to document demographic and clinical data. Socio-demographic characteristics (e.g. age, gender, migrant status) were documented through a self-report questionnaire. Age was categorized to be consistent with the Hunan Province State Statistical Bureau. Symptom severity was assessed with the Positive and Negative Syndrome Scale (PANSS), which consists 30 items (Kay et al., 1987). In addition, the recent five-factor model of schizophrenia symptoms based on the PANSS developed by the US NIMH (Wallwork et al., 2012) was used as well, defining: Positive, Negative, Disorganized/Concrete, Excited and Depressed factors.

Exposure to childhood trauma was assessed with the Chinese version of Short-Form of the Childhood Trauma Questionnaire (CTQ), which has been validated by Bernstein (Bernstein and Fink, 1998) as a reliable and valid tool to identify and evaluate the severity of traumatic and adverse experiences in childhood. Cutoff scores for each of five subscales were as follows: ≥ 13 for emotional abuse; ≥ 10 for physical abuse; ≥ 8 for sexual abuse; ≥ 15 for emotional neglect; ≥ 10 for physical neglect. If the score in each subscale is all below 8, then the patient would be considered as having no childhood trauma experience.

2.6. Analysis

First the proportion of migrants among the acutely hospitalized sample was identified and compared with the proportion of migrants in the general adult population of Hunan province. The proportion in the hospitalized sample was divided by the proportion in the general population to identify the risk ratio (relative risk) of being a migrant worker by the above definition, among those hospitalized for schizophrenia. These comparisons were also stratified by gender and by 4 age subgroups, which is the same classification of *Migrant Workers Monitoring Survey Report* published by State Statistical Bureau.

Next for the analysis of childhood trauma and symptom severity, chi-square and *t*-test were used to examine the difference between

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