

Commentary

Migration and Mental Health: What are the Underlying Link?

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Migration is a movement away from the place of usual residence. Based on the origin and destination, migration is classified as international migration (immigration) and internal migration, including return migration. As one critical demographic event along with birth, marriage, childbearing, and death in humans, migration may not only reflect societal development but also indicate a dynamic change. For example, industrialization and urbanization are often associated with a massive movement of people from rural to urban, from the less developed to the more developed areas, including those who seek a better opportunity for education, change in career or family reunions. Other people may be force-migrated due to political and environmental reasons.

Migrants may suffer from psychosocial stress that may cause mental health problems. An elevated incidence of a psychiatric disorder was initially observed in immigrants from Morocco to the United Kingdom and was later supported by the hospital-based records in the immigrants from Morocco to the Netherlands, although no significant elevation of risk was found in female immigrants (1). Further, by comparing incidence of psychotic disorders in immigrant groups to that in native populations in the Netherlands, Selten and colleagues found that people from Morocco, Surinam, the Netherlands Antilles, and other non-Western countries had at least a 2-fold increase in the risk of developing schizophrenia in the first and the second generation (2). However, the increased risk of schizophrenia was not found in Turkish immigrants of first and second generations and immigrants of Western countries. People have commented that methodological rigor is required in the cross-culture research(3).

In the paper published in this issue(4), Ren and colleagues conducted a population-based survey in seven provinces about psychological well-being in returning migrants in China and found that returning migrants were more likely to have elevated levels of anxiety compared with those never migrated out from their hometown after social and demographic variables were adjusted. Based on the cutoff threshold of the General Health Questionnaire-12 item, the "caseness" for general mental health problems was defined among the returning migrants. It was seen in the Supplementary Table of the paper by Ren et al that the prevalence

of caseness were at 8-16% in all provinces except Guangdong, the most developed province that has attracted a large number of migrants from the neighboring provinces over the past four decades. A noted difference in the rates of mental health problems between returning migrants and non-migrants was found in Sichuan (12% vs. 21%) and Anhui (7% vs. 16.3%), but not much difference in other provinces such as Henan, Hunan, and Hubei. In contrast, returning migrants in Guangdong were much higher than those non-migrants (5.7% vs. 1.4%) (4). The noted heterogeneity in migration and mental health is consistent with the study by Selten that showed significant heterogeneity in the rate of schizophrenia (2) in immigrants from Morocco to the Netherlands.

Migration occurs following a push-pull theory (5, 6), and the benefit and cost are determined by various factors and reasons associated with migration (<https://www.thoughtco.com/push-pull-factors-1434837>). For example, some migrants may be due to push factors such as unemployment; in contrast, others could be due to the pull factors such as seeking a better work, education for children, or urban lifestyle. Therefore, in conducting this type of study, it may require a rigorous methodology from study design to statistical analysis, including the study of cross-country migration as well as internal migration with variable levels of socioeconomic development. In the study of migration and health, one has to understand the types of migration as well as population factors, which might be the critical heterogeneity that affects an objective evaluation of migration and health.

While migration and health had been noted four decades ago (7), it has recently become a global concern due to globalization and increase in mobility of human populations (8-10). In the developing countries, the major health problems in migrants could be health care access, work-related injuries, non-communicable diseases such as diabetes, communicable diseases such as malaria, and behavioral risks (11); while psychosocial stress or cultural related health problems could be of concern in more developed countries. The immediate impact of migration could be on physical adaptability to the nutritional chemistry in water and soil, geographic factors that may determine the exposure to sunlight, latitude, and temperature. All these may affect the microbiota in the gut, which is a focal point for interaction between host biology and the environment.

Alteration in microbiota has been widely associated with multiple neuropsychiatric disorders, including depression (12), Parkinson's (13), and Alzheimer's disease(14). The possible link could be that gut microbiota can stimulate the production of neurotransmitters serotonin, gamma aminobutyric acid (GABA), and dopamine, that play a key role in developing those neuropsychiatric symptoms, although the etiology has yet to be elucidated. Therefore, the imbalance of gut microbiota could affect the development of these diseases through the gut-brain axis. With data from a population-based study of dementia in four regional centers (Beijing, Shanghai, Xian, and Chengdu) in China (15), the most extensive population-based study conducted through a multi-phase screening of sampled individuals aged at 55

years and above (n=35,000), Zhang and colleagues found that people who had been in their current residence for less than ten years had a 4-5 fold increase in the prevalence of Alzheimer disease and a 3-4 fold increase in the prevalence of vascular dementia (16), compared with those who had lived in the residence for 10-30 or more than 30 years. This evidence was obtained after adjustment for socio-demographic factors including age and sex. The elevated risk could indicate that migration may be a risk factor for middle-aged people who migrated out and have a weaker adaptability to new environments than younger people do. However, based on a review of a limited number of investigations, the relationship of migration and cognitive impairment is not firmly established. This is likely due to both lack of methodological rigor in the original work conducted in the Western countries (17), and the difficulty in assessing dementia in immigrants (18). Therefore, further study with rigorous methodology should be conducted in a global region especially that the international migration is growing in scope, complexity and impact, according to the United Nations Population Division.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this paper.

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