Housing stress and mental health of migrant populations in urban China

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ABSTRACT

Social epidemiological studies have long understood housing as a social determinant of mental health. However, most studies have focused on the formal housing sector and the conceptualisation of housing is limited to the housing per se. This study aims to bridge the gap by investigating the mental health impact of housing disadvantages concerning the migrant population in China, who are largely excluded from the formal housing sector. Drawing from recent writings on stress as the intermediary agent between modern city life and mental illness, the study examines the relationship between housing and neighbourhood conditions, perceived stress and mental health status. Using a large-scale survey conducted in twelve Chinese cities in 2009, this research found that informal housing tenants have the highest level of perceived stress and worst mental health status compared to dormitory tenants and formal housing residents. Poor housing conditions are significantly associated with perceived stress but not with mental health, while the neighbourhood social environment significantly predicts both perceived stress and mental health. The paper concludes by calling for more ethnographic research on migrants' resilience and stress-coping strategies and more attention in urban planning and housing policy to address the vulnerability and adversity of migrant settlements.

1. Introduction

There are growing concerns, worldwide, about interdependencies between city life and mental well-being, with new evidence in the life sciences suggesting that the stress of modern city life could be a breeding ground for psychosis (Abbot, 2012; Kennedy & Adolphs, 2011; Lederbogen, Kirsch, Haddad, et al., 2011). City life is widely perceived as stressful, as "cities are polluted, unhealthy, tiring, overwhelming, confusing, alienating", and for disadvantaged groups, cities are "the places of low-wage work, insecurity, poor living conditions and dejected isolation" (Amin, 2006). This is particularly true for the mass of rural to urban migrants in China, who move to cities in search of better paid jobs and opportunities but find themselves situated in a highly precarious urban life with hukou-based social exclusions (Cheng, Wang, & Smyth, 2014; Liu, He, & Fulong, 2008; Wu & Wang, 2014; Zhang, Zhu, & Nyland, 2014).

Indeed, contemporary urban China is experiencing growing social inequality that is largely characterised by migrants' marginalisation from social and economic opportunities in cities, including housing, employment, education, health and other services (Du, Li, & Hao, 2017; Wu & Wang, 2014). Social epidemiological studies revealed adverse mental health consequences of the economic, social and cultural aspects of exclusion experienced by rural migrants, such as lacking a formal

working contract, lacking access to social insurance and experience of discrimination (Mou, Cheng, Griffiths, et al., 2011; Lin et al., 2011. For a comprehensive review, see Li & Rose, 2017). Nonetheless, few studies have paid attention to the mental health effects resulting from housing inequalities experienced by migrant populations, despite numerous studies highlighting migrants' poor living conditions stemming from their exclusion from the formal housing system (Huang & Tao, 2015; Liu, Wang, & Tao, 2013; Logan, Fang, & Zhang, 2009; Wang, Wang, & Wu, 2010). Several recent studies have investigated neighbourhood effects on migrants' mental health (Chen & Chen, 2015; Gu, Zhu, & Wen, 2015; Wen, Fan, Jin, et al., 2010) but their research generally focused on formal residential neighbourhoods where only a very small proportion of migrants are housed, as the majority of migrant populations live in informal settlements (such as urban villages) and dormitories (Liu et al., 2013).

In the international literature, housing, among various aspects of urban life, has long been recognised as a key social determinant of mental health (Evans, Wells, & Moch, 2003; Mari-Dell'Olmo, Novoa, Camprubi, et al., 2017; Sederer, 2016; Shaw, 2004). These studies have revealed the adverse mental health impacts of both physical aspects of housing, such as building design and housing quality, and the social and economic aspects, such as affordability, tenure and crowding (Bonnefoy, 2007; Cairney & Boyle, 2004; Evans et al., 2003; Gibson,

Petticrew, Bambra, et al., 2011; Pierse, Carter, Bierre, et al., 2016). However, there are several gaps in the existing literature that require further research on housing and mental health in a developing context such as China. First, previous studies typically focused on housing conditions alone, without paying sufficient attention to the immediate neighbourhood context as an essential part of the residential environment. We contend that an expanded conceptualisation of housing should include both the dwelling and the neighbourhood to better understand the mental health impacts. Second, most studies on housing and mental health have been conducted in developed countries, and consequently, they focused largely on the formal housing sector. Yet, in the Global South, a large proportion of the urban population - particularly migrants - reside in informal settlements characterised by low housing quality, inadequate indoor and outdoor facilities, and a poor neighbourhood environment (Ren, 2018). Therefore, it is imperative to generate knowledge on the mental health effects of housing from the context of ongoing urbanisation in developing countries (Bonnefoy, 2007). Finally, many studies have reported only the associations between housing and mental health without further investigating the underlying mechanisms (Evans et al., 2003).

Drawing from recent writings about the role stress plays as a key intermediary experience linking urban life with its mental health consequences (Adli, 2011), this research aims to offer a more theoretically informed understanding of housing, stress and the mental health of migrant populations in rapidly urbanizing China. It focuses not only on formal housing but also on informal housing and dormitories; not solely on housing per se but also on surrounding neighbourhood environments. It echoes the call of interdisciplinary research into the "neuropolis" (Fitzgerald, Rose, & Singh, 2016) or "neurourbanism" (Adli, Berger, Brakemeier, et al., 2017) to "characterise urban stressors and their modulators" and thereby intends to inspire dialogues among researchers in urban studies, sociology and public health, with respect to the mechanisms between housing, stress and mental health.

2. Linking housing, stress and mental health

The past few decades have seen increased scholarly interest in exploring stress response in the human urban environment. It was not until 2011, when Lederbogen's team identified distinct neural mechanisms linking the urban environment to social stress for the first time, that research shed light on the biological mechanism of city living that made the brain more susceptible to mental health conditions (Abbot, 2012; Lederbogen et al., 2011). Although housing – including its immediate neighbourhood context – is recognised as a critical aspect of city life, housing stress remains under-conceptualised and the aspects of housing that are linked to stress and poor mental health have not been fully understood.

In most narrow terms, housing stress refers only to financial strains, measured by housing affordability indicators (Nepal, Tanton, & Harding, 2010; Rowley, Ong, & Haffner, 2015). Studies reported that poor housing affordability affects mental health via the stress of housing payment difficulties (Bentley, Baker, Mason, et al., 2011). However, social epidemiological studies have also found that overcrowding, residential instability, safety, and relationships with neighbours and landlords could cause stress and mental problems (Quinn, Kaufman, Siddiqi, et al., 2010; Sandel & Wright, 2006), and thus there has been a call for an expanded conceptualization of housing stress.

Following the World Health Organization's conceptual model (Bonnefoy, 2007), this research regards housing as a physical dwelling for residence that provides affordable shelter and basic living facilities, a protective refuge where one gets a sense of control and autonomy, and an immediate built environment where important daily activities occur in a safe environment. Unfavourable housing and neighbourhood conditions operate as chronic stressors that ultimately produce adverse mental health outcomes (Matheson, Moineddin, Dunn, et al., 2006; O'Campo, Salmon, & Burke, 2009; Polling, Khondoker, Hatch, et al.,

2014). In a review of built environment and mental health, Evans (2003) summarised that better housing quality, including better building structures and indoor amenities (e.g., private bath, central heating), is positively associated with better mental health.

Other scholars stress the psychological benefits of home through providing a sense of privacy, security, control and identity (Dupuis & Thorns, 1998; Kearns, Hiscock, Ellaway, et al., 2000). Saunders (1990) argues that "home is where people feel in control of their environment, free from surveillance, free to be themselves and at ease, in the deepest psychological sense, in a world that might at times be experienced as threatening and uncontrollable" (p361). Social medicine studies found that the meaning that people invest in their homes, their satisfaction with their homes and the amount of control they are able to exercise in the social and economic aspects of their domestic relations were empirically linked with self-reported mental health status (Dunn & Hayes, 2000). A lack of privacy, sense of control and autonomy in one's home may generate pathological manifestations such as anxiety, depression, insomnia, paranoid feelings and social dysfunction (Bonnefoy, 2007).

In addition to housing conditions, unfavourable neighbourhood environments also operate as chronic stressors that ultimately produce adverse mental health outcomes (Matheson et al., 2006; O'Campo et al., 2009; Polling et al., 2014). Neighbourhood physical deprivation, such as deteriorating or poorly maintained buildings, poor state of street lighting and paved roads and limited access to resources and services has significant associations with levels of depression, as well as general mental wellbeing (Diez Roux & Mair, 2010; Galea, Ahern, Rudenstine, et al., 2005; O'Campo et al., 2009). Neighbourhood social deprivation often signals a breakdown in community social control and leads to the perception of a residential environment as dangerous and threatening (Galea et al., 2005; Matheson et al., 2006). A pan-European study reported chronically severe annoyance instigated by neighbourhood noise could induce emotional stress and increase the risk of depression (Niemann, Bonnefoy, Braubach, et al., 2006). Perceived safety in the neighbourhood is also associated with stress and mental health (Booth, Ayers, & Marsiglia, 2012; Diez Roux & Mair, 2010).

This paper, therefore, presents an empirical analysis of migrant populations in urban China to further investigate the mental health effects of various aspects of housing and neighbourhood stressors resulting from limited housing opportunities for migrants (refer to Fig. 1 for conceptual framework). Specifically, the empirical analysis is designed to investigates: (1) to what extent migrants living in formal housing may have lower levels of perceived stress and better mental health conditions compared to migrants living in informal settlements and dormitories, and (2) which aspects of housing stressors – e.g. cost burden, over-crowding, inadequacy of indoor facilities, and residential instability, and neighbourhood stressors; e.g. physical deprivation and social deprivation – are more significant predictors of perceived stress and mental health status of the migrant populations in China.

3. Housing migrants in urban China

Numerous studies have unveiled the housing disadvantage of migrants in urban China resulting from the persistent institutional barriers of the *hukou* system, the dual land system and the discriminative affordable housing policy (Liu et al., 2013; Logan et al., 2009; Wu, 2004; Wu & Wang, 2014). Not only is homeownership generally out of reach for migrants, but even renting in the formal housing sector is difficult due to the lack of accessibility and/or affordability. Informal housing and employer-provided dormitories, thus, have been the most important sources of housing for migrants (Huang & Tao, 2015; Liu et al., 2013).

Informal housing refers mainly to housing in urban villages built by local villagers on collectively owned land, often out of formal urban planning and without municipal-government-supplied services (Wu, Zhang, & Webster, 2013). The physical environment in urban villages is generally characterised by high density, crowding, poor housing