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Burden of Disease in China

Contrasting Disease Burden Patterns of the General and the Migrant Workers Populations

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Introduction to Working Papers on Migration and Health in China

This paper is part of a series of outputs from the research project on [Migration and Health in China](#).

China is confronted by major challenges posed by the massive population movement over the past three decades. In 2009, approximately 230 million rural inhabitants moved temporarily or permanently to cities in search of employment and better livelihoods. Such large-scale mobility has huge implications for the pattern and transmission of diseases; for China's health care system and related policies; and for health of the Chinese population in both receiving and sending areas. The health and social issues associated with population movement on such an unprecedented scale have been inadequately addressed by public policy and largely neglected by researchers. Based on interdisciplinary research across the health, social science and policy fields, this project constitutes a major effort to fill research and policy gaps. Collectively, the papers and commentaries in this series aim to provide a comprehensive assessment of the health and public policy implications of rural to urban migration in China, to inform policy and to identify future research directions.

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Acronyms

AIDS	Acquired immunodeficiency syndrome
BoD	Burden of Disease
COPD	Chronic obstructive pulmonary diseases
DALY	Disability-Adjusted Life Year
DOT	Directly observed therapy
GBD	Global Burden of Disease
HIV	Human immunodeficiency virus
HPV	Human papilloma virus
ICD	International Classification of Diseases
PWC	Pair-Wise Comparisons
SMPH	Summary Measure of Population Health
STI	Sexually transmitted infection
TB	Tuberculosis
UI	Uncertainty Interval
WHO	World Health Organization
YLD	Years of Life Lived with Disability
YLL	Years of Life Lost due to premature Death

Summary

One of China's major challenges in terms of socio-demographic changes and population health is the large mobile population mainly represented by rural-to-urban migrant workers. After enacting of the "open door-policy" in 1978, economic growth, particularly in the large coastal urban centres, dramatically accelerated. Massive urbanization processes took place fuelled by rural-to-urban migration. The sheer quantity of these rural-to-urban migrant workers highlights the importance of this group for societal changes and population health in China. This also concerns the influence of migrant workers' specific disease burdens and their health-related behaviours on the health of the Chinese population in general.

Despite the obvious significance for population health in China, there is no systematic burden of disease (BoD) assessment available for the migrant subgroup. The BoD approach, a comparative methodology enabling, among other things, the analyses of the distribution of diseases and symptoms and their temporal changes within and between countries, was used to describe the "background" disease burden in the general population, focusing the typical age group of migrant workers (aged 15 to 49 years). This detailed description should highlight the most important disease patterns in the general population in this age group in China. By means of a BoD assessment and the analysis of the specific health-related characteristics of migrant workers reported by the available key literature, this paper aims at describing the disease burdens of migrants and their specific health needs in contrast to those of the general population. The paper further discusses the potential influence of this large subpopulation on the health status of the general Chinese population.

Data provided by the recent GBD 2010 Study was used to provide a description of the disease burden in China in terms of Disability-Adjusted Life Years (DALYs) representing both population-based mortality and morbidity in one summary measure of population health. The DALYs were stratified for three main disease groups (group I representing communicable, maternal, perinatal and nutritional conditions; group II representing non-communicable diseases; group III representing injuries) and related subgroups. This was done in detail for the year 2010 but also changes over time were considered (1990 to 2010). Additionally, the key literature on migrant workers' health and related determinants was reviewed to examine how migrant workers differ from the general population in terms of health-related factors.

In total, over all age groups, about 316 million DALYs (95 per cent Uncertainty Interval [UI]: 292-342 million) were lost in China (complete Chinese population) in 2010 which results in an age-standardized DALY rate of 22,806 (95 per cent UI: 21,125-24,630) per 100,000 population. About 10.1 per cent were due to communicable, maternal neonatal and nutritional disorders (group I), 77 per cent due to non-communicable diseases (group II), and 12.9 per cent due to injuries (group III). Group I conditions mainly contributed to the disease burden in the age groups below 15 years. The DALYs attributable to non-communicable diseases rose with increasing age and injuries reached their peak in the 20-24 age group (30 per cent) with a steady decline with increasing age. Most DALYs in China in the age group 15 to 49 years were due to non-communicable diseases (11,092 DALYs per 100,000; 95 per cent UI: 9,859-12,438), followed by injuries (3,243 DALYs per 100,000; 95 per cent UI: 2,856-3,899) and infectious diseases (1,261 DALYs per 100,000; 95 per cent UI: 1,041-1,601). The DALY rates for women were lower than for

men for all three groups, especially for injuries. The DALY rates declined in the observed period between 1990 and 2010 indicating a median decline of 34.2 per cent for the age-standardized DALY rate. This decrease is the result of the rapid health transition in China, which is characterized by demographic and epidemiological changes influenced by declines in fertility, child and adult mortality, and increasing life expectancy in the past decades.

The main text provides more details about the groups of causes and single disease entities and their contribution to the disease burden, including a ranking of leading causes of DALYs for the population aged 15-49 years in China and its changes from 1990 to 2010. The disease patterns indicate that China is in a transitional phase: there is already a large non-communicable diseases burden but group I and III conditions still play an important role. Besides the BoD assessment of the general Chinese population, this paper focuses on the health and associated factors of the estimated 190 million internal rural-to-urban migrant workers. This subpopulation usually is relatively young (around the age of 15 to 39 years), with the majority being male. Due to their low socioeconomic status, migrant workers are frequently forced to live in low-standard, crowded conditions, often accompanied by poor hygiene increasing the risk of (infectious) diseases and are typically engaged in the dirtiest and most dangerous jobs. Migrants also are under higher risk of psychological problems due to work load, stress, discrimination and societal exclusion in the cities. On the other hand, migrants are more likely to engage in risky behaviour, such as having multiple sex partners or providing and utilizing commercial sex which inheres additional health risks.

Considering DALYs for the age group 15-49 and the literature review on the health of migrant workers, one conclusion is that rural-to-urban migration has a non-negligible effect on the disease burden of the general population in China. The results show that the specific demographic and behavioural characteristics deviating from the general Chinese population can lead to an increased disease burden. This is particularly true for diseases and injuries related to their low socio-economic status, the kinds of typical occupations and behaviours. However, the health risks among migrant workers and their potential effects on the general population must not lead to further stigmatization of migrants in the cities. Many factors besides migration status—such as sex, marital status, employment status, income and education—also play a role. The findings of this paper emphasize the need for improved living and working conditions as well as for migration-specific (health) education to minimize health risks for migrant workers and the general Chinese population.

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