Inequality in Health Status of Elderly Chinese in Cities: A Multilevel Analysis of Migrants and Local Residents

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Abstract

It has been well recognised that migrants have been an important part of urban labor force in China and they have made significant contributions to China's recent economic growth. Yet, there has been inadequate research examining the inequality in health of the elderly by comparing self-rated health status of elderly migrants and elderly local residents both at the individual level and at the provincial level. Based on data from the 2015 Migrant Dynamics Monitoring Survey in China, this paper applies logistic regression model and multilevel analysis to examine the health inequality. It is found that the elderly migrant who held non-local rural *hukou* reported significantly better self-rated health status than their urban migrant counterparts and local rural *hukou* holders, but not significantly different from elderly urban residents. In the multilevel analysis, it is expected that provincial variances in the threshold of access to health services would affect the self-rated health status.

Extended abstract

Introduction

It has been recognized that migrants have been an important part of urban labor force in China and they have made significant contributions to China's recent economic growth. Migrants are also known for having lower unemployment rate as those who are unable to find jobs would return to their places of origin (Guo and Iredale, 2004; Zhao, 2002). Yet, very few studies have focused on the health status and general well-being of elderly migrants other than focusing on the disadvantaged labour market outcomes of working-age migrants. The report from the National Health and Family Planning Commission of China (NHFPC) in 2016 shows that increasing number of migrants brought their children and parents to their destination cities. Family migration will be a major trend in the future years. Those elderly migrants who move into cities for family re-union or look for jobs tend to face high risks of physical illness or psychological problems as it would be more difficult for them to access to urban health services compare to working-age migrants (The NHFPC, 2016). Yet, very few studies have focused on the health status and general well-being of elderly migrants. A comprehensive study of health status of elderly migrants with their counterparts will contribute to the understanding of migrants' integration (or lack of) into the host communities, but also have implications for the improvement of health-care provision system in Chinese cities.

Motivation

Studies have shown that rural-urban migrants in China are more likely to have illnesses (Guo and Liu, 2001; Huang et al., 2001). The root reason lies in the institutional constraints (e.g. household registration system), which limit migrants' access to urban health services (Liu, 2003; Wang et al., 2005). Another reason of the disadvantaged health status of migrants lies in their lack of knowledge or ignorance of health issues, as well as their overall inferior economic status in urban China (Wang and Zuo, 1999). Recent studies suggest that rural migrants, comparing with their urban counterparts, report lower rate of utilization of urban medical services and poorer self-rated health status (Chen, 2011; Mou et al., 2009).

The existing study of self-rated health has primarily focused on the working-age migrants and their utilization of health services or self-reported health status in host cities (Hong et al. 2006; Mou et al., 2009). These research has emphasized the institutional constraints on migrants and their difficulties to access to medical insurance converge and other urban health services.

Few studies have compared the health status of elderly migrants and that of elderly local residents from the perspective of inequality. There has been inadequate research examining the inequality in health by comparing the self-reported health status of elderly people based on the institutional constraints (e.g. elderly rural residents, elderly urban residents and elderly rural-urban migrants and elderly urban-urban migrants). In this paper, we intend to take a further step toward examining the inequality of health status of the elderly groups both at individual level and at the provincial level. It has been suggested that China experiences uneven economic and social development (Whyte and Sun, 2010). Coastal provinces have been given policy priorities and allocated more resources that have facilitated their economic and social development. In addition, regional protectionism reinforces the provincial variations (Kanbur and Zhang, 2005). This uneven development would contribute to the inequality of availability of health care provision and access to health care services by individuals in different segments of the society. This paper aims to address the questions such as what are the main differences/inequalities of health status between elderly migrants and elderly urban residents and to what extent are individual differences associated with the regional variances. The multilevel analysis allows us to shed more light on the inequality of well-being of elderly population in China by examining differentials at both individual level and provincial level.

Data and Methods

This paper uses the data from the 2015 Migrant Dynamics Monitoring Survey in China in 2015. This dataset was collected by the National Health and Family Planning Commission (HFPC), which has 20,000 migrant respondents and 1,600 local resident respondents. The Stratified Sampling and Probability Proportionate to Size Sampling (PPS) methods were used to select respondents in the survey. The selected elderly respondents have to meet these criteria: elderly rural-urban migrants are defined as those who are aged 60 and above and without the urban household registration (*hukou*) on the date of survey while elderly urban-urban migrants are defined as those who are aged 60 and above and with urban *hukou* at other urban cities instead of the destination city. Elderly urban residents are those who are aged 60 and above and have the local urban *hukou* while elderly rural residents are those who are aged 60 and above and have the local rural *hukou* status. To comprehensively understand the health status of migrant group and local residents, this survey captured respondents in diverse communities, including residential neighborhoods and village neighbourhoods. This dataset has a specific module of health services among the elderly. Health information mainly

include their self-rated health status, medical insurance coverage, income sources and social attachment to destinations.

This paper uses multinomial logistic regression model and multilevel analysis to examine the inequality of self-rated health status of the elderly people in these groups. The dependent variable in multinomial logistic regression model is "self-rated physical health" of the elderly people with three categories (healthy, unhealthy but with self-care ability, and unhealthy without self-care ability). Independent variables include the institutional constraints (rural resident, urban resident, rural-urban migrants and urban-urban migrants), health insurance access, income sources (reliance on family members, pensions, basic living allowance or rental income), and social attachments (e.g. number of friends and living with children or not, and exercise hours per day). In the multinomial model, provincial variances are measured by GDP per capita at provincial level. Demographic variables are controlled in the model. Table 1 presents the descriptive analysis of variables that were applied in the empirical studies.

Table 1 Descriptive analysis of variables

	Elderly rural-urban migrants	Elderly urban-urban migrants	Elderly rural locals	Elderly urban locals
Demographic variables				
Age	66.39 (mean)	67.18 (mean)	66.58 (mean)	67.45 (mean)
Female	4119 (48%)	2082 (46.7%)	70 (68%)	95 (55.6%)
Male	4464 (52%)	2373 (34.2%)	33 (32%)	76 (44.4%)
Unmarried	33 (0.4%)	11 (0.2%)	0 (0%)	0 (0%)
Married	6733 (78.4%)	3886 (87.2%)	76 (73.8%)	128 (74.9%)
Divorced	90 (1%)	83 (1.9%)	2 (1.9%)	5 (2.9%)
Widow/Widower	1727 (20.1%)	475 (10.7%)	25 (24.3%)	38 (22.2%)
Primary education and below	6437 (75%)	1361 (30.5%)	77 (74.8%)	59 (34.5%)
Secondary education	1755 (20.4%)	1580 (35.5%)	19 (18.4%)	46 (26.9%)
High education	367 (4.3%)	956 (21.5%)	7 (6.8%)	47 (27.5%)
College and above	24 (0.3%)	558 (12.5%)	0 (0%)	19 (11.1%)
With access to medical insurance	7308 (91%)	3802 (92.9%)	89 (90.8%)	161 (99.4%)
Income sources				
Reliance on family members	3893 (49.3%)	417 (9.7%)	46 (51.1%)	16 (9.8%)
Salary	2516 (31.9%)	363 (8.4%)	7 (7.8%)	0 (0%)
Pensions	1160 (14.7%)	3485 (80.8%)	31 (34.4%)	145 (88.4%)
Basic living allowance	288 (3.6%)	36 (0.8%)	3 (3.3%)	2 (1.2%)
Rental income	36 (0.5%)	12 (0.3%)	3 (3.3%)	1 (0.6%)
Social Attachment				
Numbers of local friends	7.3 (mean)	9.7 (mean)	9.3 (mean)	8.1 (mean)
Exercise hours per day	60.99 (mean)	75.71 (mean)	60.78 (mean)	69.77 (mean)
Living with children	1841 (21.4%)	832 (18.7%)	43 (41.7%)	69 (40.4%)
Total	8583 (64.5%)	4455 (33.5%)	103 (0.8%)	171 (1.3%)

Second, the multilevel analysis is applied to examine the variances of self-rated health both at the individual level and at the provincial level. The existing studies have introduced the

advantages of multilevel analysis in social sciences, especially in the area of health and geography (Duncan et al., 1996). Through this technique, it is possible to estimate: 1) the general relationship between individual variables, provincial variables and self-rated health status; 2) the variations across provinces that could not be accounted by the existing variables in the model; 3) the variations across individual groups across provinces; 4) the interactions between individual variables and provincial variables. In these models, Gini coefficient at provincial level, provincial public expenditure on medical services and the provincial threshold of access to medical services in 2014 are added into the model to further capture the provincial inequality.

Preliminary results

The preliminary results from the multinomial logistic regression model are presented in Table 2. The elderly migrants who held non-local rural *hukou* reported significantly better self-rated health status than their urban migrant counterparts and the local rural *hukou* holders, but not significantly different from the local urban residents. Elderly migrants who earn a salary and are employed showed considerable health advantages. The findings that rural-urban migrants hold health advantages compared with other groups are consistent with existing research that migrants with disadvantaged health status tend to return original home (Hu et al., 2008; Xiang, 2007). This is also similar to the relatively lower unemployment rate among migrant workers that observed in other studies (Guo and Iredale, 2004; Zhao, 2002). It might imply that healthy elderly migrants are more likely to stay in the destination cities while those who are unhealthy are more likely to return, which would require more health care provision in rural areas. Further, there are significant inequalities of health status at the provincial level. In the multilevel analysis, it is expected that provincial inequality affects the access to health insurance among the elderly, which in turn affects their self-rated health status. It would be important to connect the self-rated health of the older population with the macro social-economic context in which they are situated. The findings would deepen our understanding of the inequality of health status among the elderly population groups in the contemporary China. The improvement of health-care provision system of narrowing the inequality needs to be undertaken by considering both at the individual and at the provincial level.

Table 2 Estimates of multinomial logistic regression of self-rated physical health (Ref = Unhealthy but with self-care ability)

	Healthy		Unhealthy and without self-care ability	
	Coefficient (S.E.)	Odd ratio	Coefficient (S.E.)	Odd ratio
Institutional (ref.=elderly rural-urban migrants)				
Elderly urban-urban migrants	-0.297 (0.096)**	0.743	-0.507 (0.248)	0.602
Elderly rural locals	-0.742 (0.433)*	0.476	-0.967 (0.775)	0.380
Elderly urban locals	0.214 (0.259)	1.236	0.228 (0.783)	1.257
Demographic				
Age (years)	-0.059 (1.725)***	0.943	0.048 (0.011)***	1.049
Male (ref.=female)	-0.035 (0.509)	0.966	-0.020 (0.174)	0.980
Married (ref.=unmarried)	-0.940 (0.509)*	0.391	-14.225 (0196)***	6.709
Divorced	-0.951 (0.593)	0.386	-13.959 (1.078)***	8.663
Widow/widower	-0.950 (0.514)*	0.386	-14.305 (0.001)	6.128
Education (ref.= primary and below)				
Secondary school	-0.385 (0.090)***	0.681	-0.337 (0.257)	0.714
High school	-0.306 (0.132)**	0.737	-0.372 (0.371)	0.689
College and above	-0.607 (0.210)**	0.545	0.161 (0.667)	1.175
Income sources (ref.=reliance on family members)				
Salary	1.365 (0.127)***	1.255	1.247 (0.607)	3.478
Pensions	-0.056 (0.092)	0.946	0.450 (0.258)*	1.568
Basic living allowances	0.673 (0.144)***	1.956	0.223 (0.324)	1.249
Rental income	-0.821 (0.609)	0.440	13.442 (0.001)	8.271
Access to medical insurance	-0.100 (0.112)	0.905	-0.098 (0.262)	0.907
Social attachments				
Number of local friends	0.003 (0.004)	1.003	-0.033 (0.015)**	0.967
Hours of exercises per day	0.006 (0.001)***	1.006	-0.031 (0.003)***	0.969
Living with children	-0.233 (0.083)**	0.792	-0.133 (0.209)	0.875
GDP per capital (Ln)	0.453 (0.087)***	1.573	-0.083 (0.231)	0.920
Constant	6.262 (1.725)*		11.659 (3.299)*	
Number				13312

Note: The table reports the coefficients and odd ratios of the logistic regression model, and the figures in brackets report standard errors. *P<0.1, **P<0.05, ***P<0.001.

References

Chen, J. (2011). Internal migration and health: re-examining the healthy migrant phenomenon in China. *Social Science & Medicine*, 72(8), 1294-1301.

Duncan, C., Jones, K., & Moon, G. (1996). Health-related behaviour in context: a multilevel modelling approach. *Social science & medicine*, 42(6), 817-830.

Guo, F. and Iredale, R. (2004) The Impact of Hukou Status on Migrants' Employment: Findings from the 1997 Beijing Migrant Census, *International Migration Review*, vol 30, no. 2, pp 709-731.

Guo Z. &, Liu S. (2001). Analysis on the disease spectrum of migrant population in Wuhua community of Kunming.

China Community Medicine, 7(3), 23-24 (in Chinese).

Hong, Y., Li, X., Stanton, B., Lin, D., Fang, X., Rong, M., & Wang, J. (2006). Too costly to be ill: Health care access and health seeking behaviors among rural-to-urban migrants in China. *World health & population*, *8*(2), 22.

Hong, Y., Stanton, B., Li, X., Yang, H., Lin, D., Fang, X., ... & Mao, R. (2006). Rural-to-urban migrants and the HIV epidemic in China. *AIDS and Behavior*, 10(4), 421-430.

Hu, X., Cook, S., & Salazar, M. A. (2008). Internal migration and health in China. *The Lancet*, 372(9651), 1717-1719.

Huang et al. (2001) A study on the effects and affect factors of tuberculosis control in temporary residents of Shenzhen. *The Journal of Chinese Antituberculosis Association*, 23(6), 360-363 (in Chinese).

Kanbur, R., & Zhang, X. (2005). Fifty years of regional inequality in China: a journey through central planning, reform, and openness. *Review of development Economics*, 9(1), 87-106.

Liu, Z. (2005). Institution and inequality: the *hukou* system in China. *Journal of comparative economics*, 33(1), 133-157.

Mou, J., Cheng, J., Zhang, D., Jiang, H., Lin, L., & Griffiths, S. M. (2009). Health care utilisation amongst Shenzhen migrant workers: does being insured make a difference?. *BMC health services research*, 9(1), 214.

The National Health and Family Planning Commission (2016). The report of migrant population in China 2016. http://www.scio.gov.cn/xwfbh/gbwxwfbh/xwfbh/wsb/Document/1494906/1494906.htm. Accessed on 30 Oct 2016.

Wang, F. & Zuo, X. (1999). Inside China's cities: institutional barriers and opportunities for urban migrants.

(in Chinese)*American Economic Review*, 89(2), 276-80.

Wang. F., Ren, P., Shaokang, Z., & Anan, S. (2005). Reproductive health status, knowledge, and access to health care among female migrants in Shanghai, China. *Journal of biosocial science*, 37(5), 603.

Whyte, M. K., & Sun, Z. (2010). The impact of China's market reforms on the health of Chinese citizens: examining two puzzles. *China: An International Journal*, 8(01), 1-32.

Xiang, B. (2007). How far are the left‑behind left behind? A preliminary study in rural China. Population, Space and Place, 13(3), 179-191.

Zhao, Y. (2002). Causes and consequences of return migration: recent evidence from China. *Journal of Comparative Economics*, 30(2), 376-394.