Migration, Health Insurance and Health Care Disparities:

Evidence from Hypertension Management in China

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Background

- China: the most rapid urbanization and internal migration in human history.
  - Migrants grew from 50 million in 1990 to 236 million in 2012.
  - In 2013, there were approximately 166 million rural-to-urban migrants.
- Such rapid urbanization has important consequences for population health.
  - Negative effects on overall health status
  - Rising prevalence of chronic diseases.

Background

- Rural-to-urban migrants
  - Temporarily living in urban areas without formal employment.
  - Retain their rural official residency status due to the Hukou System in China.
  - Not entitled to the same social benefits that permanent urban residents enjoy

The Health Insurance System in China

- China's public health insurance programs are designed according to the Hukou system and employment status.
  - The rural health insurance program, namely the New Cooperative Medical Scheme, is targeted to people with a rural official residency (Hukou).
  - The urban health insurance program is designed for non-employed permanent residents in urban areas (namely, urban residential basic health insurance) or those with formal jobs in urban locations (namely, urban employment-based health insurance).
- Rural-to-urban migrant workers do not have full access to health care services in the urban areas.
  - Due to different health insurance coverage.

Why Hypertension?

- The present study seeks to examine health care disparities that may result from these differences in health insurance coverage and migration patterns, using hypertension as one important example.
- High prevalence.
  - In China, the prevalence of hypertension has increased dramatically from 18% in 2002 to 34% in 2010.
  - This poses severe health and economic burdens.
- Poor management, especially for migrants.
  - Migrant health is generally ignored by the urban healthcare system, especially for the management of chronic diseases.
  - In 2010, just 36% of hypertensive adults were aware of their hypertension status and only 17% controlled their hypertension well.

Literature Review

- Some studies have examined associations of migration and health status in China.
- Little on health care utilization among rural-to-urban migrants in China.
- No research has been done on hypertension management of migrants in China.

Data

- The China Health and Retirement Longitudinal Study (CHARLS)
- Four-stage probability sampling technique.
  - In the first sampling stage, 150 county-level units were randomly chosen with the probability proportional to size (PPS) in China.
  - In the second stage, three communities were randomly chosen within each county-level unit.
  - For each community, 24 households with members aged 45 or older were randomly selected.
  - The household member aged 45 or older and his or her spouse were interviewed in each household.
- In our analysis, we only used hypertensive respondents with public health insurance coverage, leaving a study sample of 4,926 individuals.

Measures of Hypertension

- A person is considered to be hypertensive if the mean systolic BP is greater than or equal to 140 mmHg and/or the mean diastolic BP is greater than or equal to 90 mmHg.
- Consistent with the medical literature, respondents with a previous diagnosis of hypertension by a doctor and/or self-reported current treatment with anti-hypertensive medication are also regarded as hypertensive.

Hypertension Management

- The relevant outcome measures in the present study included primary care services and hypertension management.
- Hypertensive respondents were defined as being aware of their hypertension if they were previously diagnosed as hypertensive by physicians or self-reported to be hypertensive.
- For those respondents who were aware of their hypertension, the survey included the following indicators of hypertension management: medication treatment, BP monitoring, physician advice, and BP control.

Description of Hypertension Management

Outcome measures	Definitions	%
All hypertensive respondents (N = 4926)		
Outpatient care	1, if the respondent has visited healthcare institutions or been visited by physicians in the last month; 0, otherwise	21.1
Awareness	1, if the respondent was previously diagnosed as hypertension by physicians or self-reported to be hypertensive; 0, otherwise.	60.7
Hypertensive aware respondents (N = 2976)		
Medication treatment	1, if the respondent was receiving anti-hypertensive medications; 0, otherwise	76.7
BP monitor	1, if the respondent has monitored BP at least once every three months during last year; 0, otherwise	57.9
Physician advice	1, if the respondent has ever gotten health advice from physicians on weight control, exercise, diet and/or smoking cessation; 0, otherwise	54.9
BP control	1, if the respondent's systolic BP is less than 140 mmHg and diastolic BP is less than 90 mmHg; 0, otherwise	42.3

Measures of Migration Status

Migration status was jointly determined by respondents' public health insurance type and place of residence.

- Local rural residents
  - respondents with rural health insurance residing in rural areas
- local urban residents
  - respondents with urban health insurance residing in urban areas.
- Rural-to-urban migrants
  - respondents with rural health insurance but living in urban areas.
- Urban-to-rural migrants
  - respondents with urban health insurance but living in rural areas.

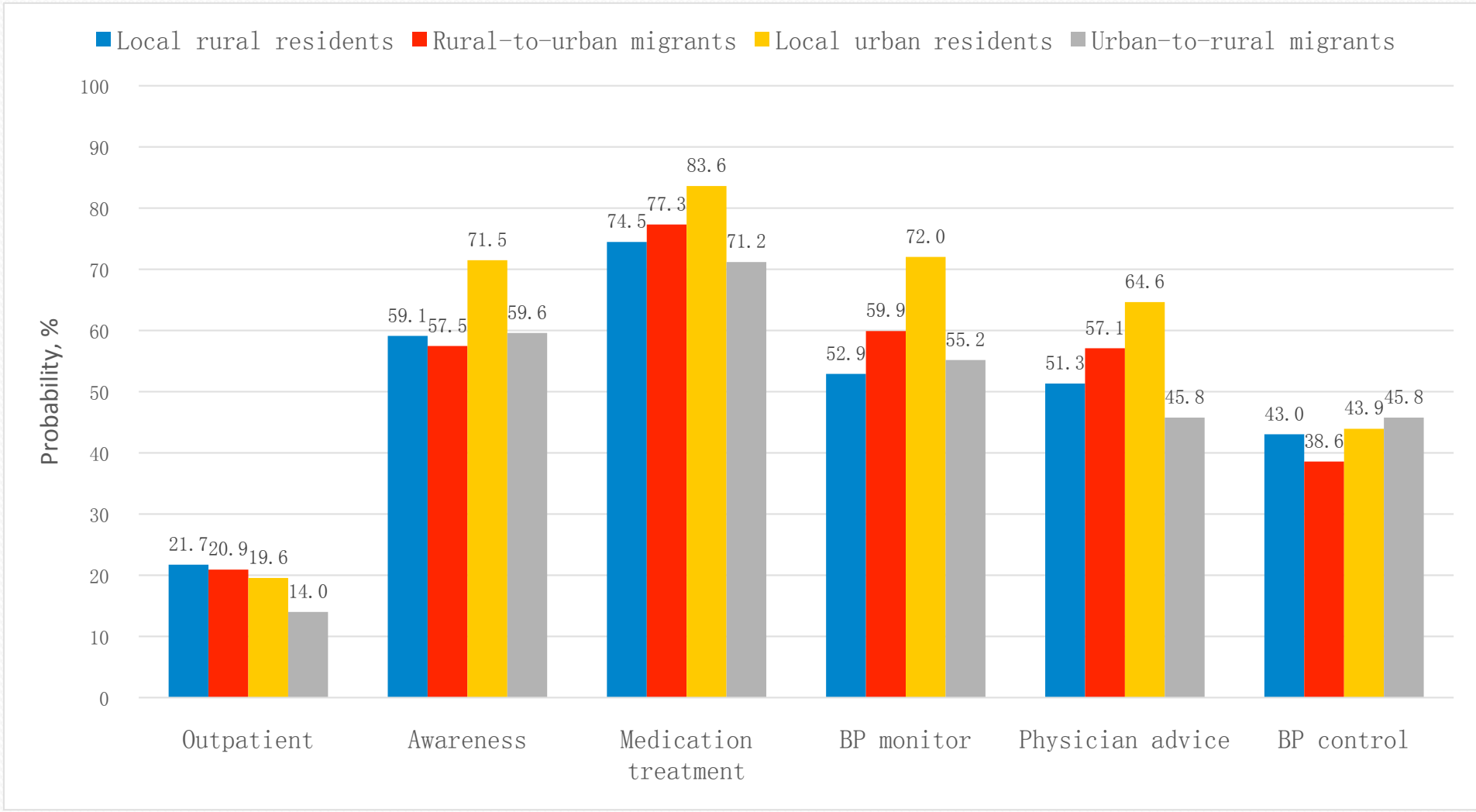
Statistical Analysis

- Multivariate logistic regressions
- Two models
  - with and without interaction terms between health insurance types and place of residence, were estimated separately.
- The interaction term
  - Whether the association of health insurance type with hypertension management differed by place of residence.
- Hypertension_Management = b0 +
  b1*Urban_Living +
  b2*Rural_Health_Insurance +
  b3*Urban_Living*Rural_Health_Insurance +
  b4*X + e

Migration

Migration status	Percent (%)
Rural-to-urban migrants	22.5
Local rural residents	60.0
Local urban residents	15.5
Urban-to-rural migrants	2.0

Comparison by Migration Status



For All Hypertensive Respondents (*N* = 4926)

Variables	Outpatient		Awareness	
	Model 1	Model 2	Model 1	Model 2
Urban living	0.97	1.69	1.03	1.51*
	(0.81-1.16)	(0.90-3.19)	(0.88-1.20)	(0.94-2.42)
Rural health insurance	1.20	1.96**	0.71***	0.99
	(0.93-1.53)	(1.07-3.60)	(0.57-0.87)	(0.64-1.55)
Urban living X Rural health insurance		0.54*		0.65*
		(0.28-1.05)		(0.40-1.07)

For Hypertensive Aware Respondents (*N* = 2976)

Variables	Medication	treatment	BP monitor		Physician advice		BP control	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Urban living	1.48***	1.55	1.37***	1.40	1.35***	2.75***	0.83*	0.92
	(1.18-1.85)	(0.80-3.01)	(1.13-1.68)	(0.76-2.59)	(1.11-1.64)	(1.55-4.89)	(0.68-1.00)	(0.52-1.63)
Rural health insurance	0.78	0.82	0.70***	0.72	0.84	1.61*	0.82	0.91
	(0.58-1.06)	(0.44-1.53)	(0.54-0.92)	(0.40-1.29)	(0.66-1.08)	(0.93-2.79)	(0.65-1.05)	(0.53-1.57)
Urban living X Rural health insurance		0.95		0.98		0.45**		0.88
		(0.47-1.91)		(0.51-1.87)		(0.24-0.83)		(0.48-1.61)

Marginal Effects of Interaction Term

	Outpatient	Awareness	Medication treatment	BP monitor	Physician advice	BP control
Coefficient	-0.078	-0.088	-0.001	0.001	-0.183	-0.029
SE	0.040	0.054	0.057	0.070	0.071	0.073
P-value	0.052	0.091	0.985	0.980	0.010	0.696

Conclusions

- The first study to evaluate the association between migration status and hypertension management in China.

- Using the CHARLS national survey of adults 45 years and older in 2011-2012, we find that hypertension awareness was quite low, at only 61%.

- Conditional on hypertension awareness, nearly 80% received anti-hypertensive medications and more than half had obtained physician advice on healthy behaviors, resulting in 42% achieving effective blood pressure control.

Conclusions

- Although public health insurance can promote the better management of hypertension, we find that rural-to-urban migration limits the positive function of rural health insurance.

- The benefits of rural health insurance on health care utilization were significantly smaller for migrants compared to local rural residents, resulting in less awareness of worse management of their hypertension.
  - The main reason: rural and urban health insurance plans are highly segmented and difficult to be transferred across geographic areas.

Conclusions

- Rural-to-urban migrants were significantly less likely to use outpatient care, to be aware of their hypertension, and to receive physician advice, but did not differ on other dimensions of hypertension management.
  - Outpatient care, awareness and physician advice rely more on accessibility to primary health care services and professionals, but taking medications and BP monitoring are more based on self-management.
- Strengthen the health care system
  - Integration of the public health insurance plans.
  - Delivery of urban primary health care to migrants.
  - Early detection of chronic diseases to improve hypertension awareness.

Thank You Very Much!