

# Evaluating the Degree of Coordination in Hypertension Medications Across Primary Healthcare Institutions, Secondary Hospitals, and Tertiary Hospitals in Shanghai, China

Jiajun Hao<sup>1</sup>, Jiangna Wang<sup>2</sup>, Haiyin Wang<sup>3</sup>

<sup>1</sup>Department of Economics and Related Studies, University of York, York, UK. <sup>2</sup>Jiangxi University of Chinese Medicine, Nanchang, Jiangxi, China. <sup>3</sup>Shanghai Health Development Research Center, Shanghai, China

HSD126

## ▶ BACKGROUND

- Hypertension is common in China, and its prevalence is rising. A 2018 nationwide survey revealed a hypertension prevalence of 27.5%, while another study indicated that the control rate was only 16.8% among Chinese adults aged 18 years and older<sup>1</sup>.
- The accessibility of antihypertensive drugs is one of the crucial factors associated with hypertension control<sup>2</sup>.
- To improve **medication accessibility**, the Chinese government has enhanced **coordination in medication utilization across different hospital levels** through the national essential medicines system<sup>3</sup>.

## ▶ OBJECTIVES

- To evaluate the degree of coordination in the use of hypertension medications across different levels of hospitals in Shanghai.
- To identify deficiencies in coordination, and develop targeted policies.

## ▶ METHODS AND MATERIALS

### ● Definition of Coordination in Hypertension Medication Use

This study primarily focuses on the coordination in the use of hypertension medications with consistent ‘**Generic Name - Dosage Form - Specification**’.

### ● Data Source

All data were sourced from the 2021 Shanghai Medication Utilization Monitoring, covering antihypertensive drugs used in primary healthcare institutions, secondary, and tertiary hospitals.

### ● Key Explanatory Variables

- **Defined Daily Doses (DDD)**: A measure of drug usage frequency over a specified period.
- **Daily Dose Consumption (DDDC)**: An economic indicator for assessing a drug’s cost-effectiveness and affordability.

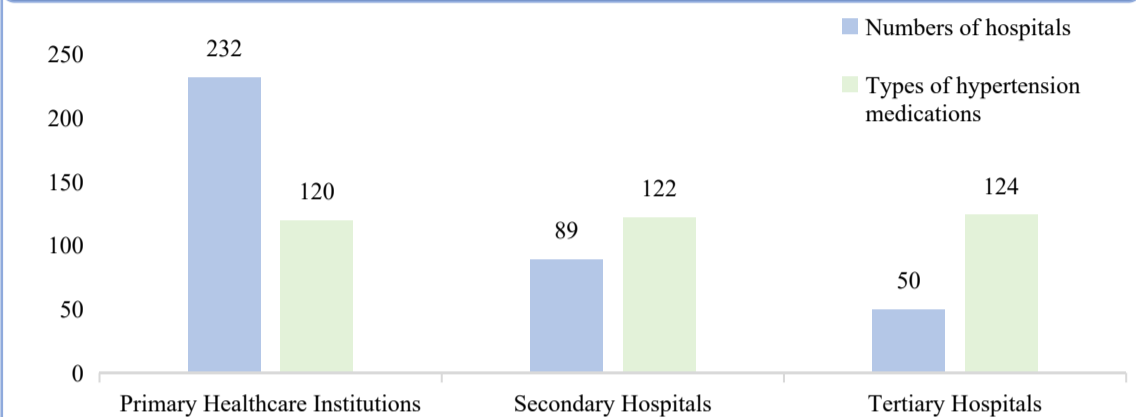
### ● Analysis

- **Pearson correlation coefficient** was used to assess the degree of coordination in hypertension medication utilization.
- **Coupling coordination analysis** was employed to verify the results.

## ▶ RESULTS

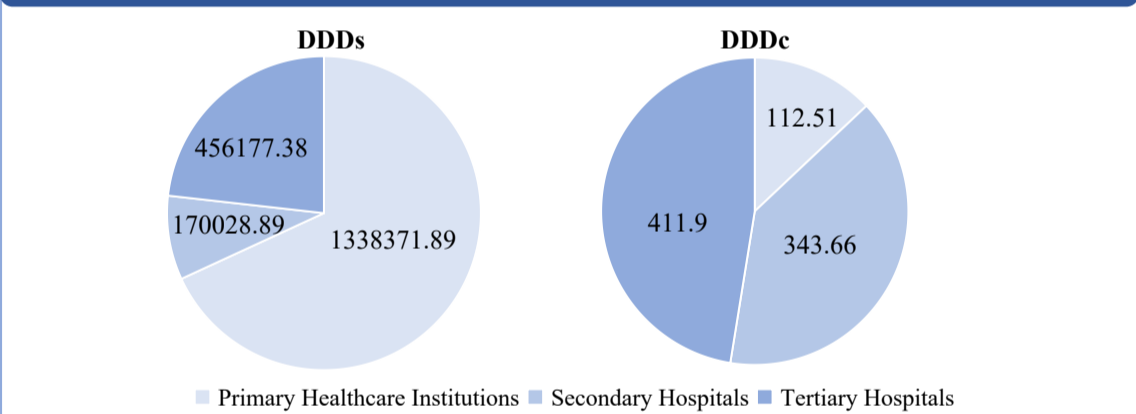
- A total of 371 healthcare institutions and 143 types of hypertension medications were included (**Figure 1**).

Figure 1. Numbers of hospitals and types of hypertension medications across different levels of healthcare institutions



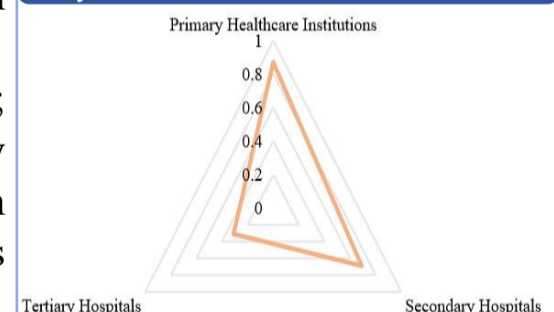
- There were statistically significant differences in DDDs and DDDc of hypertension medications across different healthcare levels (**Figure 2**).

Figure 2. Mean DDDs and DDDc of hypertension medications across different levels of healthcare institutions



- The Pearson correlation analysis indicated that the correlation coefficient between primary and secondary levels was 0.87; between primary and tertiary levels was 0.31; and between secondary and tertiary levels was 0.69.

Figure 3. The results of pearson correlation analysis



## ▶ CONCLUSIONS

- There is a relatively high level of coordination in hypertension medications between primary healthcare institutions and secondary hospitals, as well as between secondary and tertiary hospitals in Shanghai.
- Coordination of hypertension medication between primary healthcare institutions and tertiary hospitals is relatively low, highlighting the need for improvement.

## ▶ REFERENCES

<sup>1</sup> In China TWCOTROCHAD, Hu SS. Report on cardiovascular health and diseases in China 2021: an updated summary. *J Geriatr Cardiol.* 2023 Jun 28;20(6):399-430. <sup>2</sup> Bai G, Bennet C, Wang J, Anderson GF. Access to Antihypertensive Drugs in China. *Circulation.* 2018 Oct 23;138(17):1777-1779. <sup>3</sup> Barber SL, Huang B, Santoso B, Laing R, Paris V, Wu C. The reform of the essential medicines system in China: a comprehensive approach to universal coverage. *J Glob Health.* 2013 Jun;3(1):010303.