

Pulse Pressure, Threshold Effects, And Cognitive Impairment In Diverse Regional And Ethnic Populations

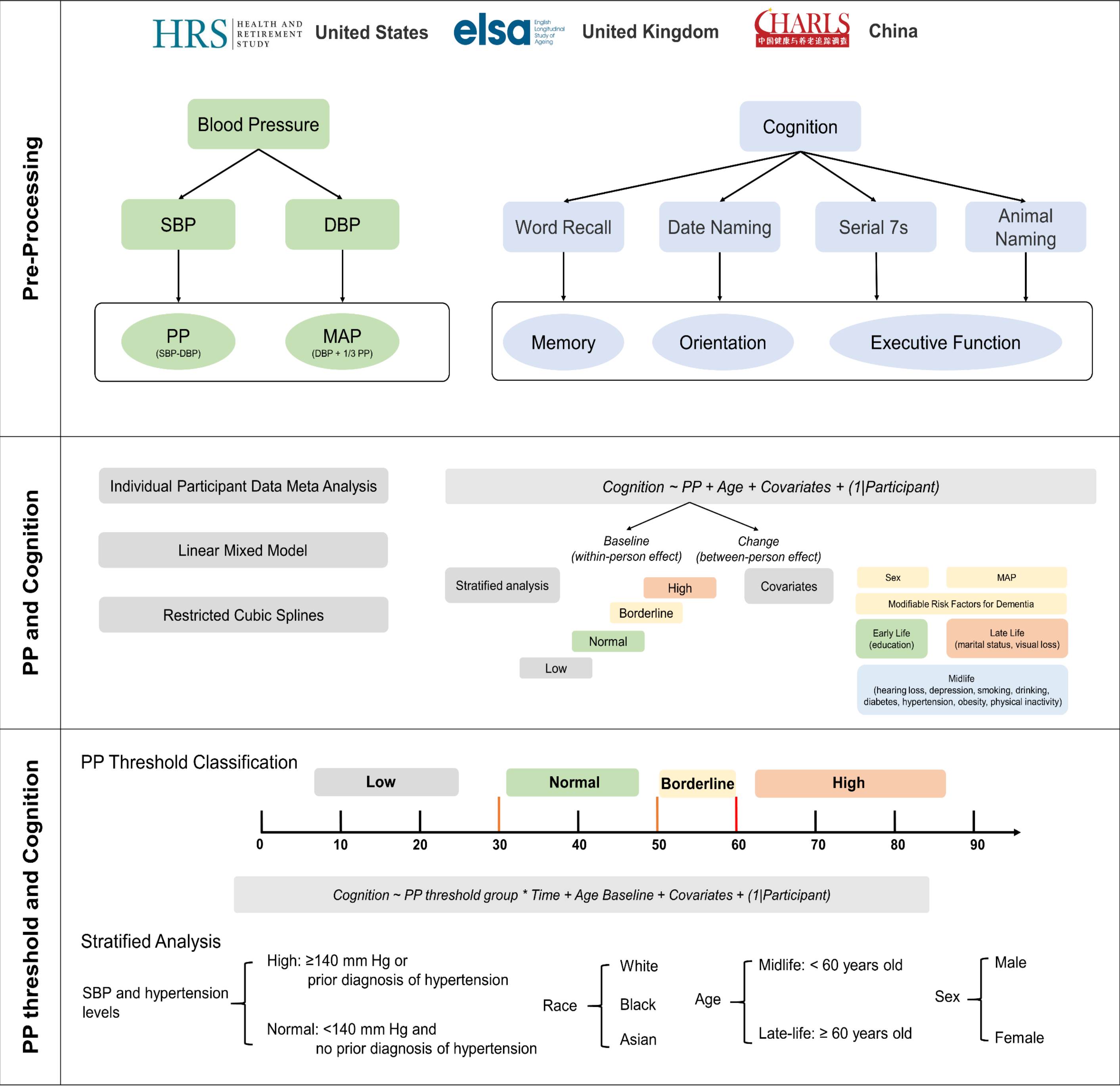
Haoran Zhang^{1,2}; Richard N. Henson^{3,5}; Shihan Chen¹, Haoxuan Wen¹; Yijin Fang²; Xuhao Zhao¹; Ting Pang¹; James B. Rowe^{2,5}; Xin Xu^{1,6,7,*}; Kamen A. Tsvetanov^{2,4,*}

INTRODUCTION

- Dementia is a major global public health challenge, and prevention requires better identification of modifiable vascular risk factors.
- While systolic blood pressure (e.g. ≥ 140 mmHg) is widely used, it may not fully capture vascular ageing and its contribution to cognitive decline.
- Pulse pressure (PP), the difference between systolic and diastolic blood pressure, provides insights into the pulsatile component of vascular burden, yet clinically meaningful thresholds remain undefined.
- We established PP thresholds predictive of cognitive impairment, independent of conventional blood pressure measures.

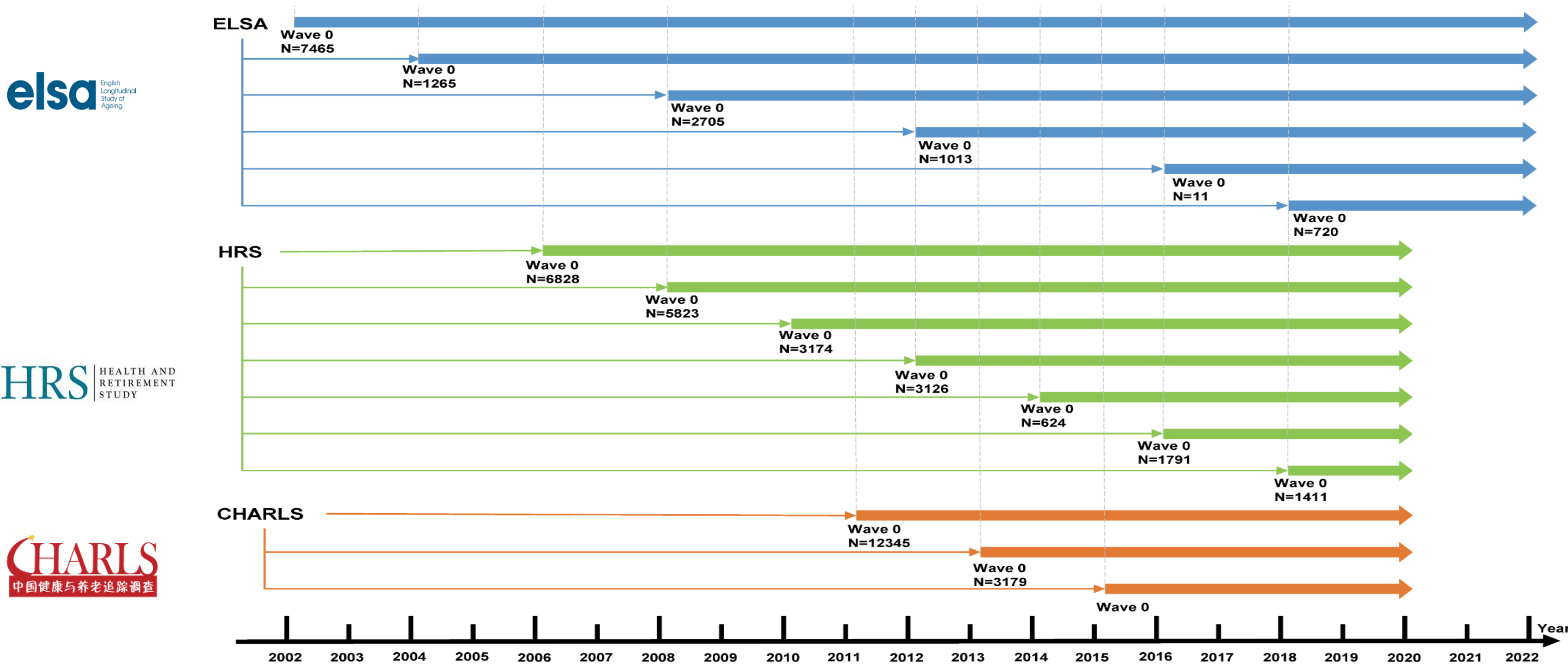
METHODS

Data processing and analysis pipeline

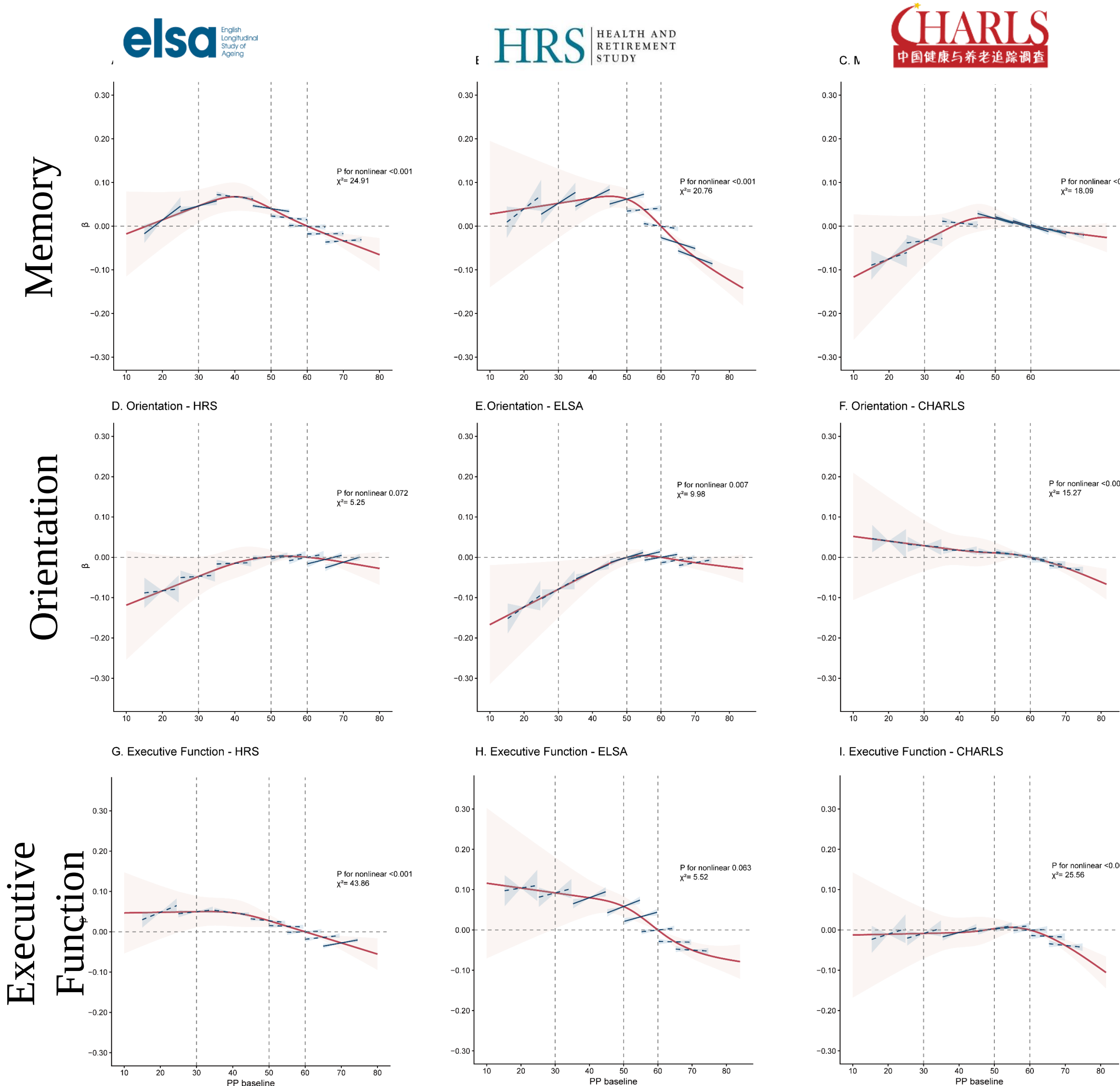


RESULTS

Sample sizes and age ranges across waves in each study



Associations of PP baseline and change with three cognitive domains



CONCLUSION

- Pulse pressure over 60 mmHg is associated with elevated cognitive risk, independent of blood pressure measures, even among normotensive individuals.
- These findings support pulse pressure thresholds as clinically interpretable and complementary markers of cognitive risk.