

Blood Pressure Variability And Cognition: Evidence For Sex-specific Associations

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BACKGROUND

- Hypertension is a major modifiable risk factor that contributes 2% of potentially modifiable dementia risk factors¹
- Hypertension is associated with both cognitive decline and structural brain changes^{2,3}
- However, less is known about how variable blood pressure (BP) influences cognitive and brain changes

OBJECTIVES

- To examine the relationship between variable BP and 1) longitudinal cognitive and functional change, 2) baseline white matter hyperintensity (WMH) burden, 3) explore potential sex differences within these relationships

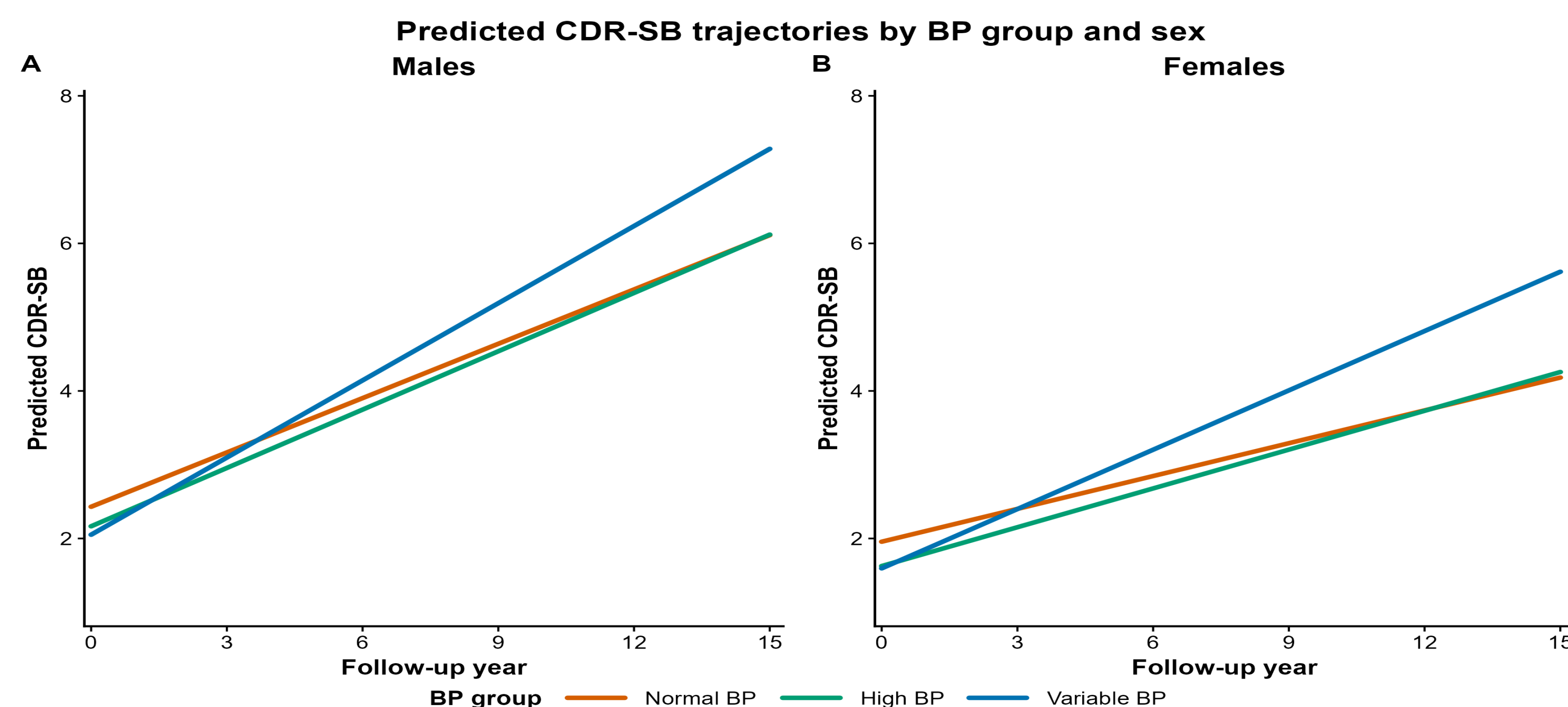
REFERENCES

- Livingston et al., (2020). *The Lancet*.
- Walker et al., (2017). *Current Hypertension Reports*.
- Gąsecki et al., (2013). *Current Hypertension Reports*

RESULTS

Full Sample Longitudinal Cognitive Analyses

- Older adults with **variable BP** exhibited the **highest rate of cognitive and functional decline** compared to high and normal BP
- Male older adults** exhibited **increased functional and cognitive decline** relative to female older adults



Sex Stratified Longitudinal Cognitive Analyses

- Males with variable BP** exhibited **increased cognitive and functional decline** relative to males with both high and normal BP
- Females with variable BP** exhibited **increased cognitive and functional decline** relative to females with both high and normal BP

Baseline Sex Stratified WMH Analyses

- Male older adults with **variable BP** exhibited increased **frontal WMH burden** when compared against **normal BP**
- Female older adults with **high BP** exhibited increased **total and frontal WMH burden** when compared against **normal BP**

METHODS

- 21,746 participants from the NACC UDS cohort with 87,764 timepoints were included
- Participants were divided into one of three groups: 1) Normal BP, 2) High BP, 3) Variable BP

Longitudinal Analysis:

*Dependent Variable ~ Age_blz + Educationz + Dx + BP_Group*Follow-up year*Sex + (1|ID)*

Baseline WMH Analysis:

Dependent Variable ~ Age_bl + Sex + Dx_bl + TimeFromBaseline:Group + TimeFromBaseline + Group

CONCLUSION

- Treatment/management of variable BP may help reduce cognitive decline in the older adult population
- Damages caused by variable BP may reduce resilience to future dementia related pathology and increase risk of dementia