

Introduction

Importance of understanding sex-specific impact of vascular risk factors on cognitive aging.

	Women	Men
 Hypertension	+	-
 Cholesterol	- LDL/HDL ratio.	+ LDL/HDL ratio
 Type II diabetes	+	-
 Obesity	Studies focus mainly on cognitive performance and not decline.	
 Smoking	Sparse and inconsistent results.	

Few studies have investigated sex differences in the contribution of vascular risk factors on cognitive decline. This study contributes to a better understanding of this complex interaction with a rich longitudinal dataset.

Objective

Determine sex differences in the association between vascular risk factors and cognitive decline in cognitively healthy participants.



Methodology

Participants

Data from the Canadian Longitudinal Study on Aging:

- Aged 65+ years
- Three timepoints every 3 years.
- Exclusion of participants with stroke, brain cancer and women with hysterectomy.

Neuropsychological Assessment

Memory composite score

- Rey Auditory Verbal Learning Test

Executive functions composite score

- Verbal fluency in the animal category
- Controlled Oral Word Association
- Stroop Test interference condition
- Mental Alternation Test

Statistics

Linear mixed models for each vascular risk factor:

- Time, sex and vascular risk factors at baseline as fixed effects.
- Memory and executive functions composite scores for each timepoint as dependent variables.
- Individual random effects.

Demographics

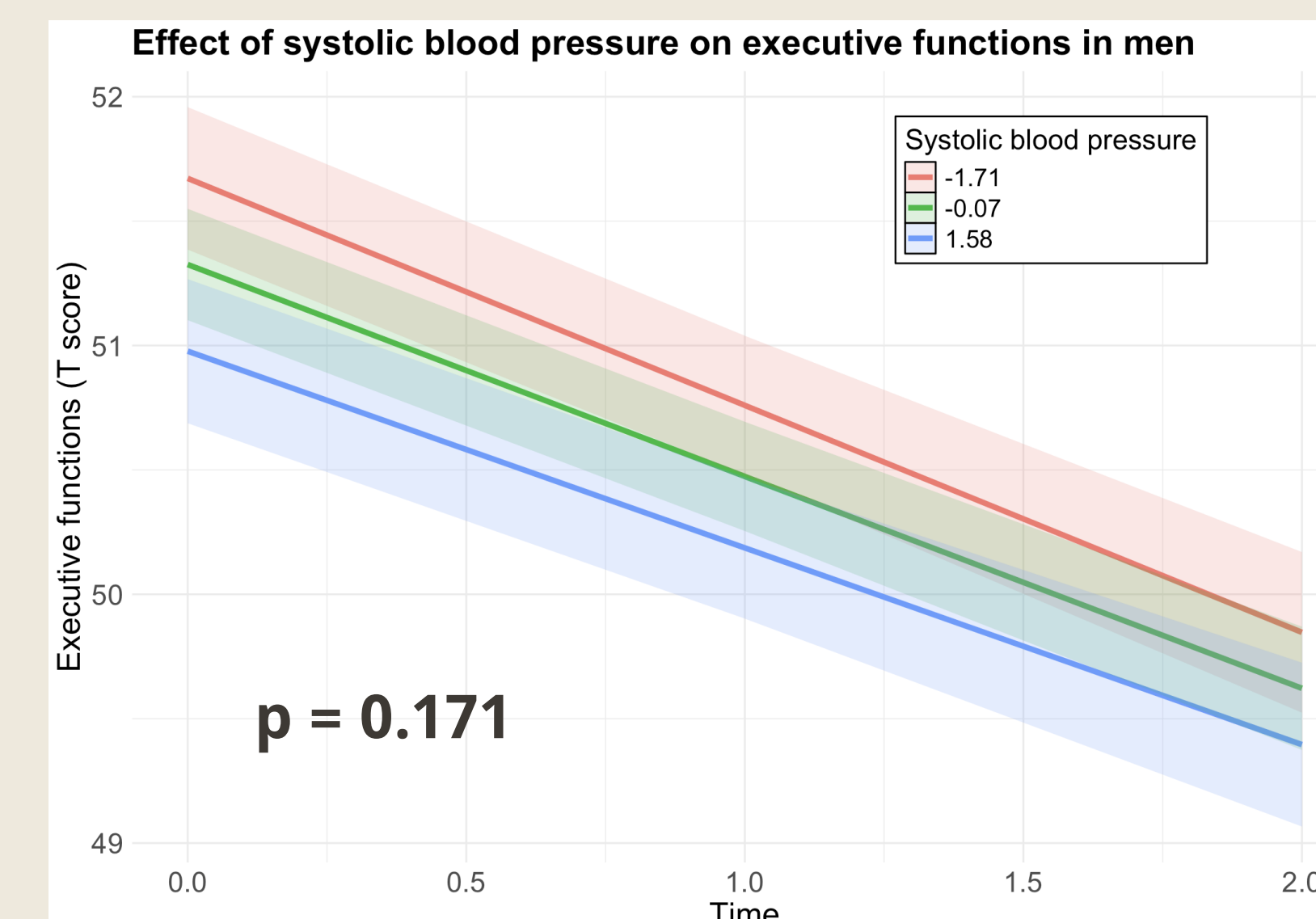
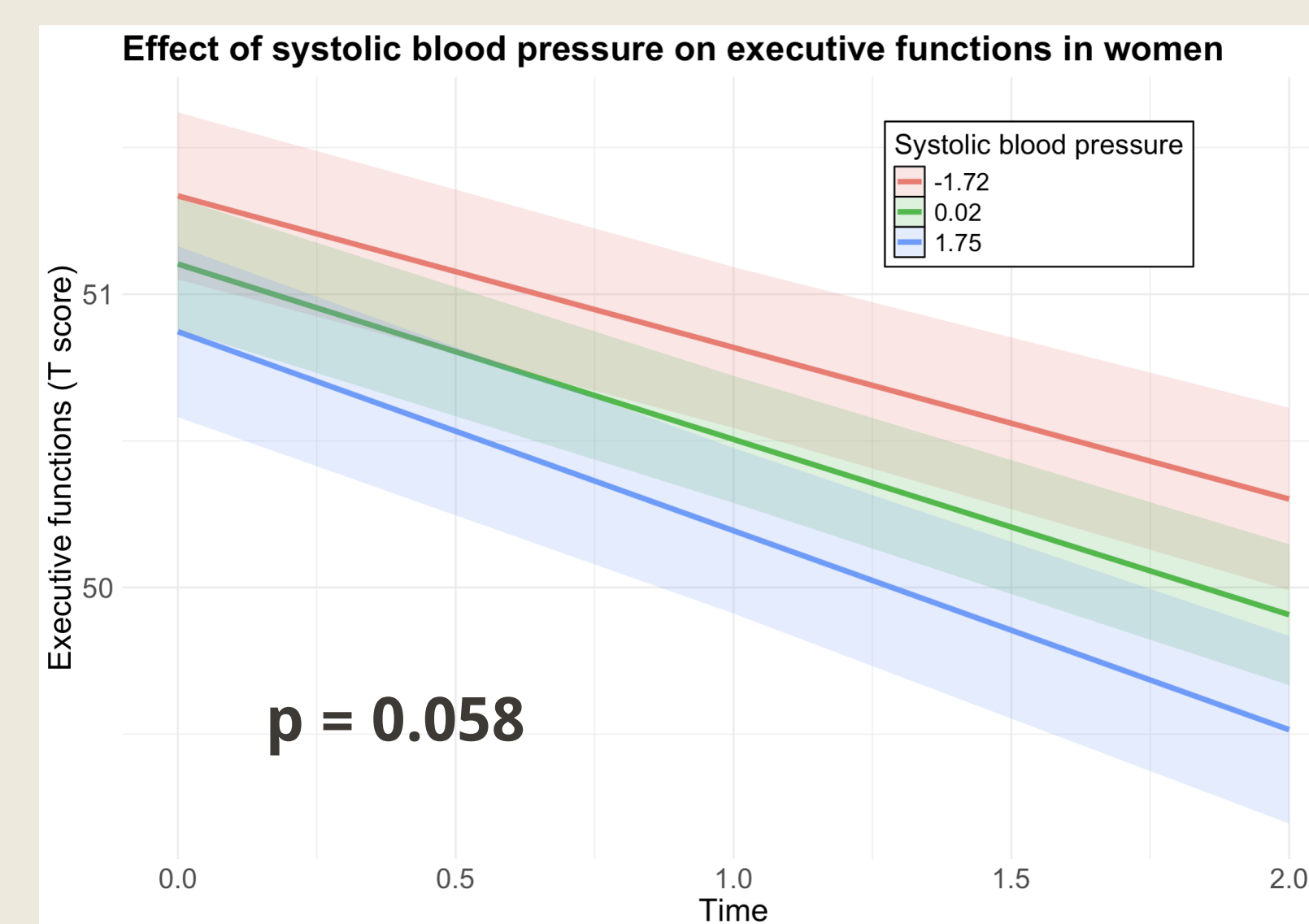
Total (N)	11 083	Education level (N)	
Women (N, %)	5 556 (50,1%)	High	8927
Age (M +/- SD)	72.9 +/- 5.6	Low	2122

Sex differences in vascular risk factors

	p-value	Women	Men		p-value	Women	Men
Sys BP (mmHg)	0.002	125.9	124.9	Waist-hip ratio	<0.001	0.84	0.98
Dias BP (mmHg)	<0.001	70.4	73.3	Body fat	<0.001	40.2	29.0
Tot chol (mmol/L)	<0.001	5.4	4.6	Diabetes	<0.001	996 diab+	1325 diab
Trigly (mmol/L)	0.010	1.8	1.7	Current smoker	0.593	259	270
LDL (mmol/L)	<0.001	2.9	2.4	Former smoker	<0.001	3240	3897
HDL (mmol/L)	<0.001	1.7	1.3	Never smoker	<0.001	2013	1317
BMI (kg/m)	0.497	27.8	27.9				

Cognitive decline in executive functions and systolic blood pressure

	Beta	Standard Error	Degree of freedom	p-value
Intercept	51.14	0.104	10570	>0.001*
Time	-0.845	0.043	6512	>0.001*
Sex	-0.014	0.133	10320	0.9131
Sys BP	-0.169	0.039	10230	>0.001*
Sex*Time*Sys BP	-0.071	0.0338	6460	0.041*



Discussion

Interpretation of results

There is a trend of stronger cognitive decline in women with high systolic blood pressure at baseline. No other sex differences were found for the other vascular risk factors.

Further investigations

- Using Reliable Change Score
- Including menopausal factors in analyses restricted to women to investigate their contribution in the vascular risk factors and cognition relationship.



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