Gender Differences of Low Control Work on Cognitive Reserve in Older Workers

Katherine Ford[1], David G. Batty[2], Anja Leist[1]

[1] *Institute for Research on Socio-Economic Inequality (IRSEI), University of Luxembourg*

[2] *Department of Epidemiology and Public Health, University College London*

Contact details: katherine.ford@uni.lu

Background:

Limited control in the workplace, one dimension of job strain, can reduce opportunities for problem-solving and learning on the job [1]. Stern's concept of cognitive reserve posits that cognitively stimulating activities can mitigate or delay the onset of symptomatic cognitive ill-health [2].

Women could be more adversely affected by low control due less access to power networks, organizational influence and pay equity [3,4], which may moderate the impact of low control work.

Conversely, gender role norms around work and family duties may support the development of a stronger family identities over work identities for women [5], thereby mitigating the impact of occupational risk factors.

Previous research has established links between low-control work and worsening cognitive performance [6-9]. We explored if this link also had gendered patterns.

Methods:

Sample population: All SHARE participants entering in waves 1 or 2, working in waves 1 and/or 2, and between the ages of 50 & 69 years. Participants were excluded if:

- they had brain cancer or Parkinson's disease in any wave, a stroke at their entry wave, or an Alzheimer's disease diagnosis in wave 2
- no answers to the questions on control at work
- less than one observation for a given cognitive test

Statistical method: Fixed-effect and random-effect models stratified on gender were used to explore cognitive performance (immediate and delayed recall, and verbal fluency) longitudinally. Hausman tests indicate that fixed-effect models should be preferred in all cases. A sequential approach to adjustment was taken for the fixed-effect models:

1. A base model with workplace control and age
2. A model with control, age and other characteristics of the person's occupation (job demands, job security, work sector, work schedules, and household income – size-adjusted & in country specific quintiles)
3. A full model with control, age, work characteristics and health status (smoking status, BMI category, chronic conditions, depression, physical inactivity, hearing loss and social isolation)

Results:

Table 1: Baseline characteristics by gender

	Men (N=6284)		Women (N=5171)	
	n	%	n	%
Control:	6,268		5,154	
moderate		62.8		64.4
high		31.8		29.5
Demand:	6,274		5,158	
moderate		70.5		69.2
high		19.4		17.1
Job security:	6,187		5,106	
yes		76.1		79.5
Sector:	6,282		5,165	
private		63.4		71.5
public		14.0		14.5
self-employed		22.7		13.9
Work schedule:	6,282		5,166	
part time		9.7		30.3
full time		72.8		63.1
overtime		17.5		6.6
Household income quintile:	6,220		5,116	
Q2		20.0		19.6
Q3		19.4		21.1
Q4		20.2		20.6
Q5		19.9		19.3
Education:	6,268		5,150	
secondary		51.6		51.3
tertiary		34.3		36.5
Smoker:	6,279		5,167	
never		35.7		53.1
former		34.0		23.3
current		30.3		23.6
Body mass index:	6,245		5,085	
<25		33.1		53.1
25-29.9		51.1		33.0
≥30		15.8		13.9
Chronic condition:	6,282		5,169	
yes		22.2		20.4
Depression:	6,209		5,128	
yes		10.8		24.2
Inactive:	6,279		5,167	
yes		2.9		3.6
Hear loss:	6,284		5,170	
yes		3.2		2.0
Married/partnered:	6,277		5,161	
yes		83.9		74.1
Mean age in years (SD)	6,284	55.2 (3.7)	5,171	54.7 (3.6)
Mean verbal fluency score (SD)	6,212	21.5 (7.5)	5,133	22.2 (7.1)
Mean immediate recall score (SD)	6,220	5.4 (1.6)	5,144	5.8 (1.6)
Mean delayed recall score (SD)	6,224	3.9 (1.8)	5,144	4.5 (1.9)

SD: standard deviation

Results:

- Patterns were consistent across varying level of adjustment in stratified models
- No effects detected in women with stratified models
- No effects detected in either gender for delayed recall scores

Table 2: Beta coefficients for the association of control at work with three cognitive tests using fully adjusted fixed effect models for **men**

	Control	β	[95% confidence interval]	p-value
VERBAL FLUENCY	**high**	0.063	[0.015 – 0.111]	**0.010**
	moderate	0		
	low	0.087	[-0.017 – 0.190]	0.100
IMMEDIATE RECALL	**high**	0.007	[-0.051 – 0.064]	0.820
	moderate	0		
	low	0.212	[0.089 – 0.335]	**0.001**
DELAYED RECALL	**high**	-0.009	[-0.066 – 0.048]	0.760
	moderate	0		
	low	-0.056	[-0.178 – 0.066]	0.370

Discussion/Conclusions:

- Men's cognitive performance was associated with their level of control at work
- No clear effects in women – evidence for a gender difference
- Consistent with Bielby and Bielby's notion that work identity formation is more constrained for women [5]
- This may evolve over time as women enter more spheres of the workforce in greater numbers
- Support for future research which gives consideration to occupational exposure differences by gender

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