

Years of education is differentially linked to language and cognitive performance on only a subset of tasks in older adults

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Background

- Level of education, as measured by years of education, has often been associated with cognitive vitality in aging.
- However, whether years of education also affects language performance in older adults has been relatively unexplored.
- **Aim:** To examine the effects of **years of education** on **cognition** and **language**

Methods

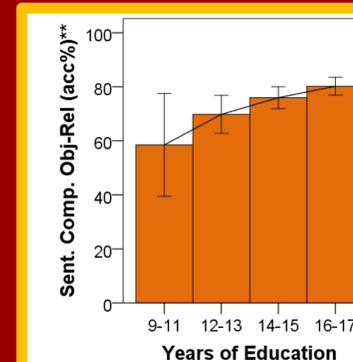
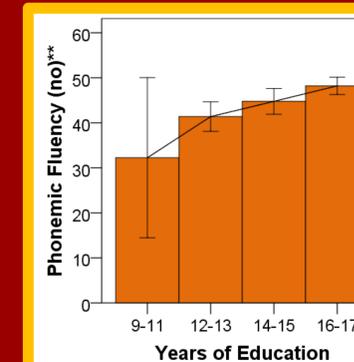
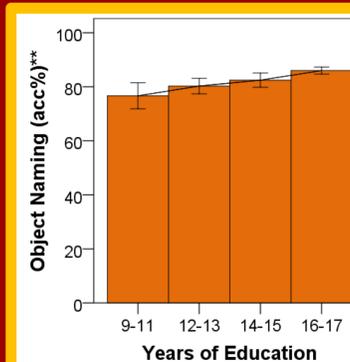
- **Sample:** 291 older adults (145m; 146f), aged 55 - 84 years ($\bar{X} = 71.7$), with 9 to 17+ years of education ($\bar{X} = 15.0$)
- **Measures:** Lexical retrieval, sentence comprehension, executive functions, working memory, general cognition
- **Analyses:** Multiple regressions adjusted for age and gender (analyses included samples from the whole group based on the number of participants who completed each task)

Discussion

- **Years of education** played an important role in older adults' **lexical retrieval** skills and in their **sentence comprehension** abilities. However, the effect of education on cognitive performance in aging was restricted to **working memory** and **set-shifting**.
- Christensen et al. (1997) found an influence of education on language tasks, but not on cognitive tasks, arguing education permits compensation for crystallized but not fluid intelligence.
- Our findings suggest the picture is more complex: crystallized and some fluid intelligence tasks are linked to years of education.
- These differential effects may reflect the relationship between cognition and language abilities observed in other studies of language performance in aging (e.g., Goral et al., 2011); the relationship between years of education and language might be mediated by the effects of education on cognitive skills such as working memory and set-shifting.

References & Acknowledgements

- Christensen et al. (1997), *Int. J. of Geriatric Psychiatry*.; Goral et al. (2011), *Experimental aging research*.
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	LANGUAGE		COGNITION				
	Task	Stand. β	p (**<.01)	Task	Stand. β	p (**<.01)	
Lexical Retrieval	Object naming (ACC)	.245	< .001**	General	MMSE	.044	.488
	Object naming (RT)	-.206	.001**	Working Memory	Listening span	.227	< .001**
	Action naming (ACC)	.227	< .001**		Month ordering	.210	.001**
	Action naming (RT)	-.070	.289	Digit ordering	.193	.002**	
	Phonemic fluency	.254	< .001**	Executive Function: Shifting	Trail-making	-.220	< .001**
	Semantic fluency	.158	.005**	Executive Function: Inhibition	Stroop	.046	.472
Sentence Comprehension	Embedded object-relative clauses (ACC)	.274	.001**	Cognitive Speed	Stop-signal	.015	.808
	Embedded object-relative clauses (RT)	.067	.449		Choice reaction time	-.099	.121
	Sentences with two negation markers (ACC)	.251	.007**		Letter comparison	.124	.074
	Sentences with two negation markers (RT)	.007	.945		Pattern comparison	.114	.083

