

2012-05-31

Comparing the Cognitive Screening Tools MMSE and SLUMS

Nehala Pullam

Western Oregon University, npullam08@mail.wou.edu

Katie Mackor

Western Oregon University, kmackor10@mail.wou.edu

Kristoffer Molloy

Western Oregon University, kmolloy09@mail.wou.edu

Jesse Kopel

Western Oregon University, jkopel10@mail.wou.edu

Chelsey Grigsby

Western Oregon University, cgrigsby08@mail.wou.edu

See next page for additional authors

Follow this and additional works at: <https://digitalcommons.wou.edu/aes>



Part of the [Cognition and Perception Commons](#)

Citation

Pullam, N., Mackor, K., Molloy, K., Kopel, J., Grigsby, C., Miller, R., Graves, A., & Buckingham, D. "Comparing the Cognitive Screening Tools MMSE and SLUMS." Group presentation at the Academic Excellence Showcase, Western Oregon University, May 31, 2012.

This Presentation is brought to you for free and open access by the Student Scholarship at Digital Commons@WOU. It has been accepted for inclusion in Academic Excellence Showcase Proceedings by an authorized administrator of Digital Commons@WOU. For more information, please contact digitalcommons@wou.edu, kundas@mail.wou.edu, bakersc@mail.wou.edu.

Authors

Nehala Pullam, Katie Mackor, Kristoffer Molloy, Jesse Kopel, Chelsey Grigsby, Ryan Miller, Amanda Graves, and Devan Buckingham

MMSE and SLUMS as Measures of Cognitive Impairment

Nehala N. Pullam, Katie M. Mackor,

Kristoffer N. Molloy, Jesse L. Kopel, Chelsey C. Grigsby,
Ryan M. Miller, Devan N. Buckingham, Amanda K. Graves

Introduction

- ▶ Mini-Mental State Examination (MMSE)
 - One of the most widely used neuropsychology tests and dementia screening tool.
 - Many practitioners have used MMSE scores to recommend treatment options, but are unsure how SLUMS scores compare to those well-known cut-off scores.

Introduction

- ▶ Limitations of MMSE
 - Rigid reliance on specific cut-off scores can lead to errors in diagnosis
 - Patients with higher MMSE scores can show significant cognitive impairment when given more sensitive tests

Introduction

- ▶ Saint Louis University Mental Status (SLUMS)
 - Better tests for aphasia
 - Five items to remember instead of three (MMSE)
 - Clock drawing already built-in
 - Psychometrically superior

Introduction

- ▶ Cognitive Reserve
 - May cover up neuropathophysiology of dementia

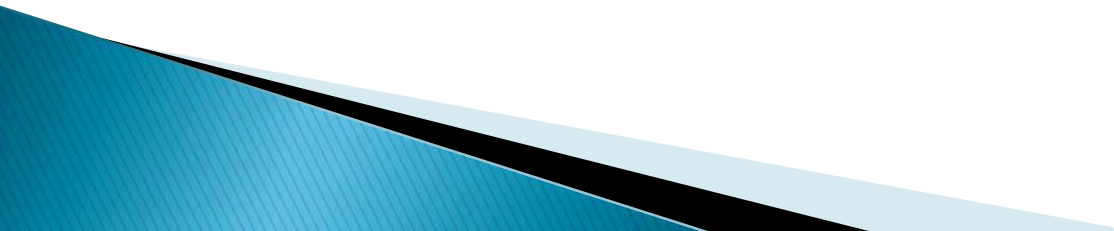
Introduction

- ▶ Shiroky, J.S., Schipper, H.M., Bergman, H., & Chertkow, H. (2007):
 - 3 patients scored 30 at time of diagnosis; 5 patients able to score 30 on follow-up administration.
 - 5 of the 27 patients scored 27 or higher with diagnosis of mild AD.
 - “Normal functioning” scores on MMSE were seen with lower scores on many other assessment tools used in this study.

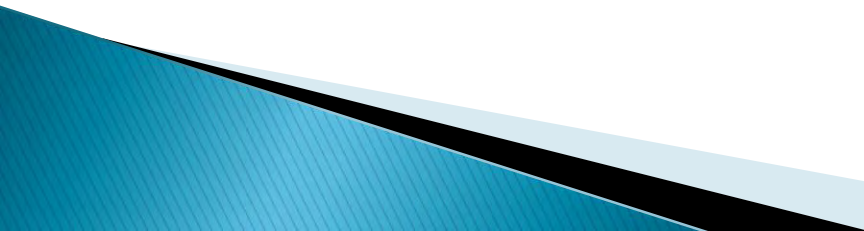
Introduction

- ▶ Molinuevo, J.L., Berthier, M.L., & Rami, L. (2011):
 - Found patients with more mild AD (MMSE \geq 21) responded better than those with severe AD in terms of language, IADLs (e.g., using telephone)
- ▶ Raji, Tang, Heyn, Kuo, Owen, Singh, & Ottenbacher (2005):
 - Mental status screening using SLUMS detected 60% more cases of mild cognitive impairment when compared to MMSE.
 - Significant correlations found between MMSE and SLUMS.

Objective

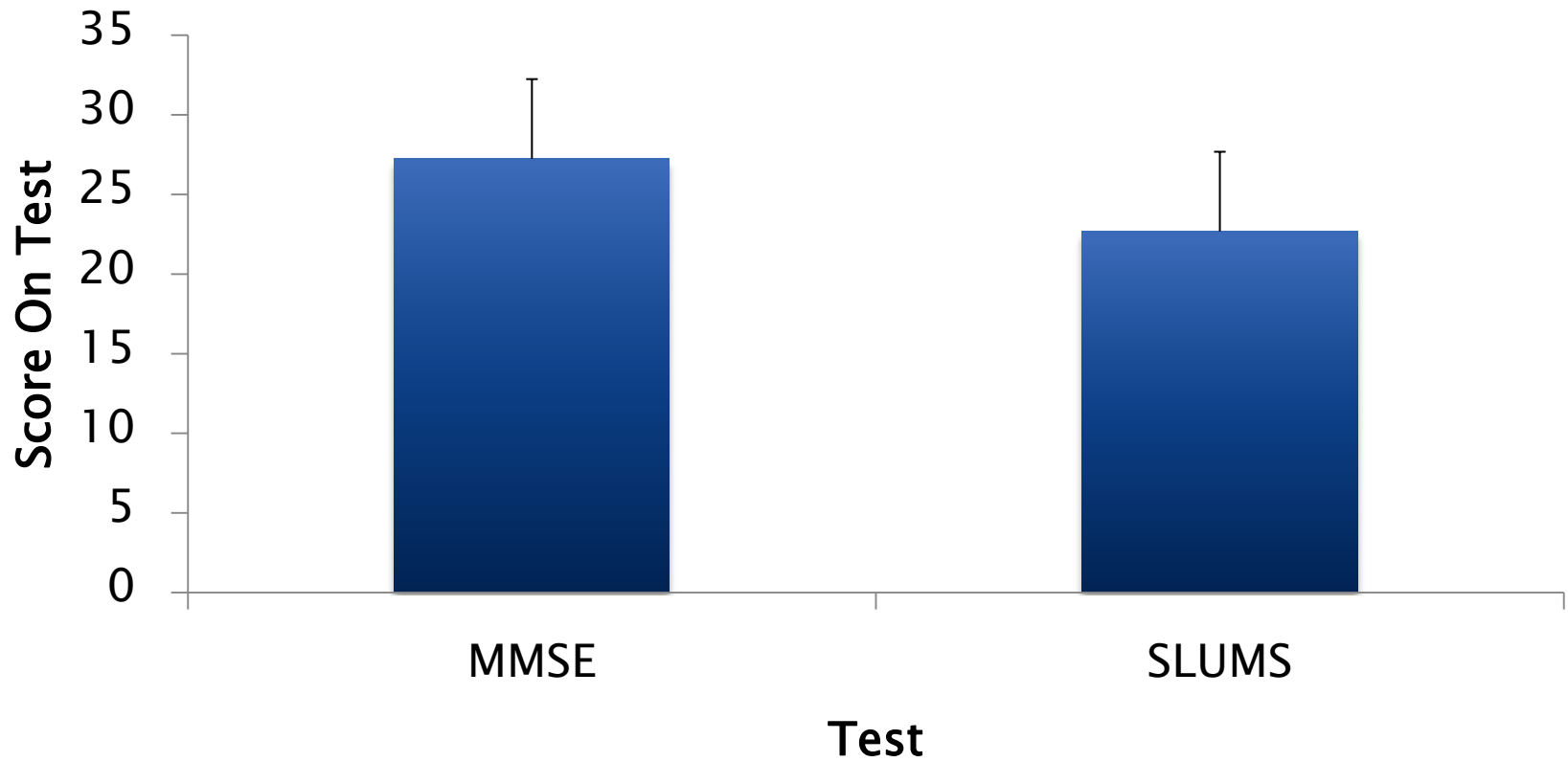
- ▶ **Establish norms** to provide practitioners with a direct method of converting and comparing MMSE and SLUMS scores.
 - ▶ **Cognitive reserve**, defined as years of education, would show a difference between MMSE and SLUMS scores.
- 

Methods

- ▶ Collected data from variety of independent and non-independent living environments.
 - ▶ Total of 118 participants with an average age of 80.03 (SD=8.71).
 - ▶ Participants had an average educational attainment of 14.97 years (SD=2.68).
 - ▶ Each participant was given both the MMSE and SLUMS .
 - Test order counterbalanced to minimize testing bias.
- 

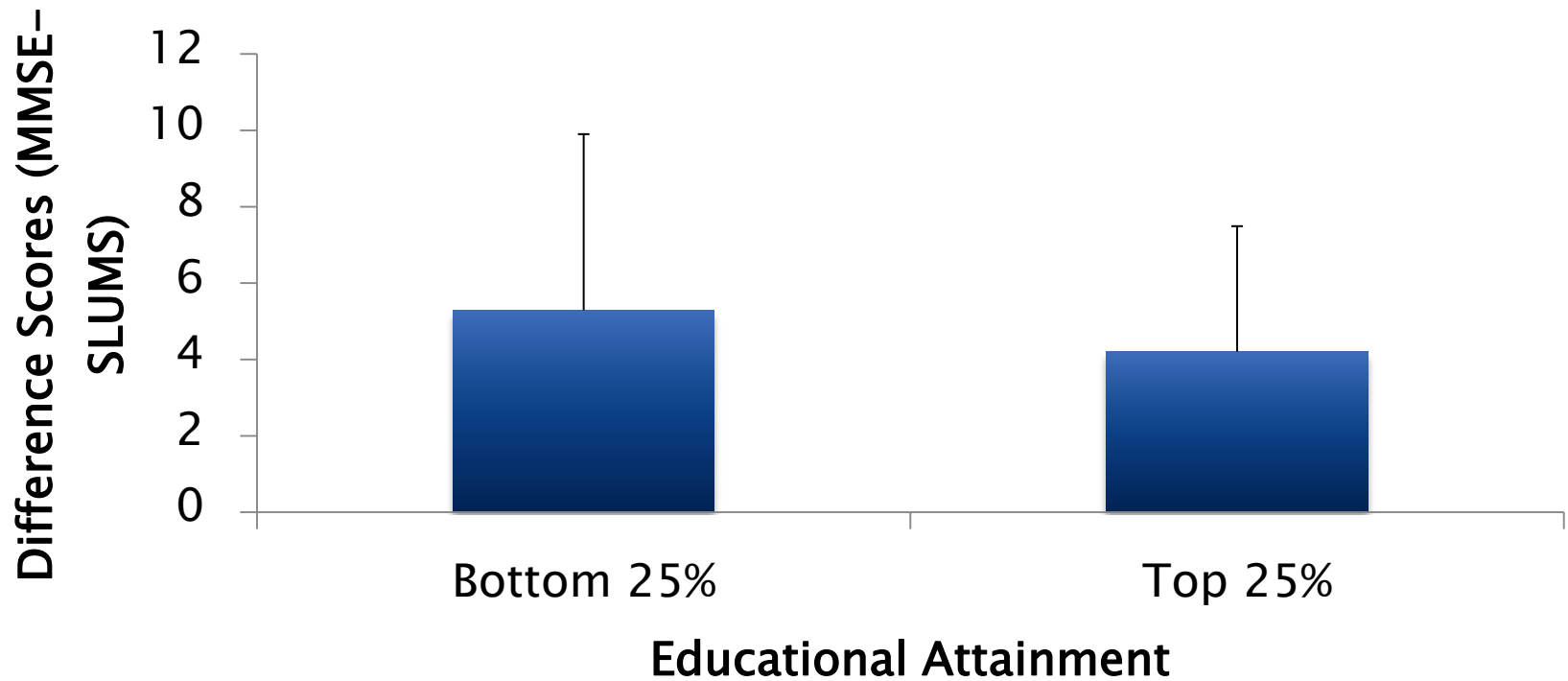
Results

All Participants

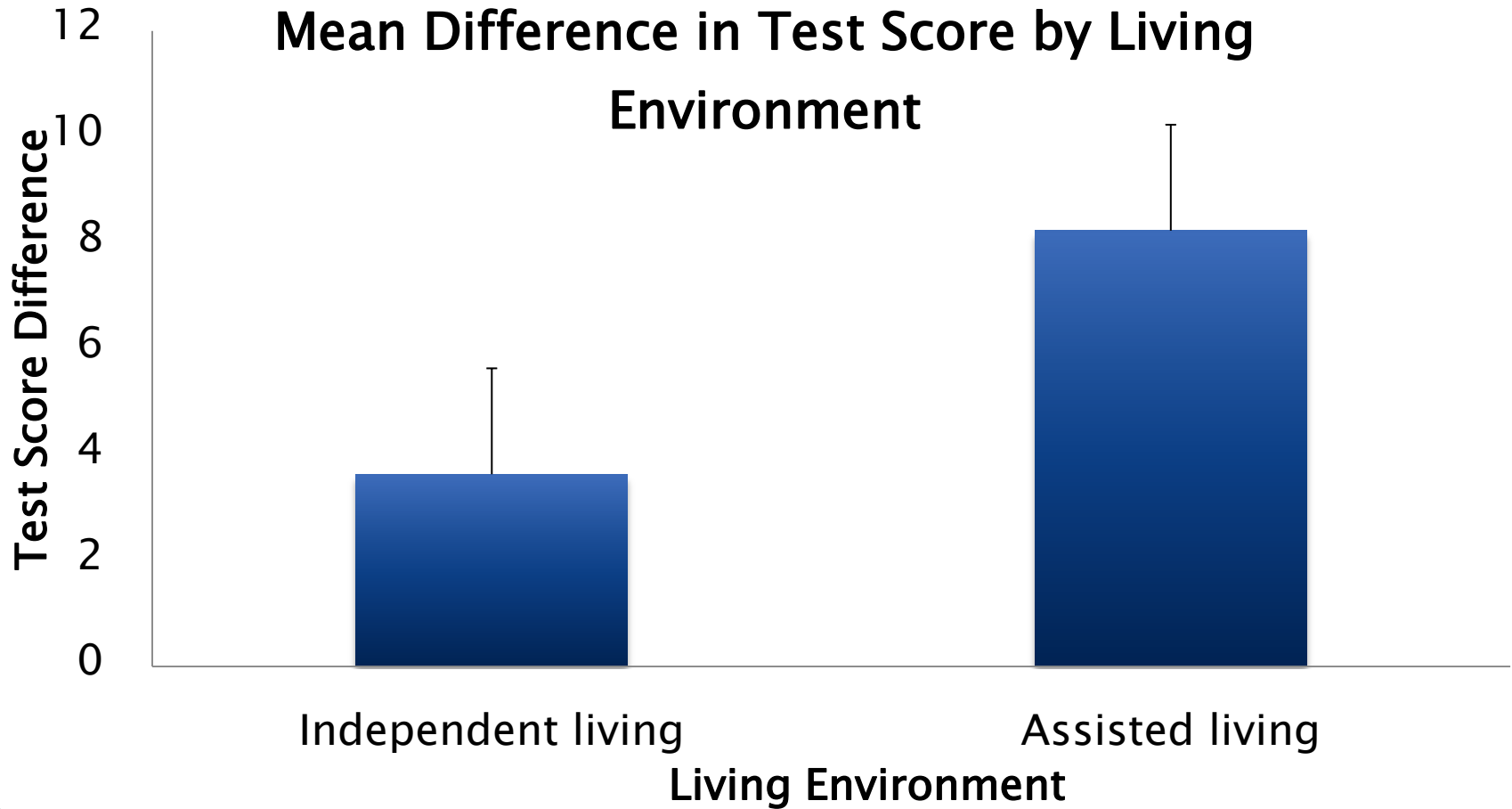


Results

Comparison of Top and Bottom Quartiles of Educational Attainment



Results



Results

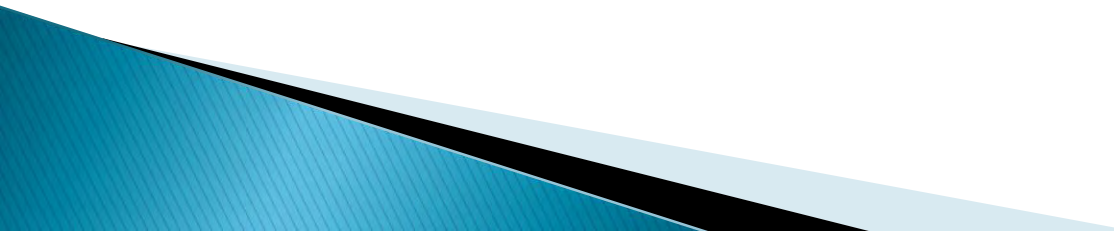
Average MMSE and SLUMS scores as a function of living environment

Living Environment	MMSE	SLUMS
Assisted Living	23.55	15.32
Independent Living	28.03	24.41
Skilled Nursing	29.00	24.00
Other	29.00	23.50

Conclusions & Implications

- ▶ It may be SLUMS is more sensitive at detecting cognitive impairments when people are in mild cognitive impairment range.
- ▶ We did not find evidence to support our cognitive reserve hypothesis.
- ▶ Practitioners can now convert SLUMS and MMSE scores with our observation that there is an average difference of 4.56
 - SLUMS is lower score.

Limitations

- ▶ Education levels may be higher than average.
 - ▶ A more representative sample of relevant demographic variables is needed.
 - ▶ There may have been a selection bias in the type of people who volunteered for this study.
- 

References

Molinuevo, J.L., Berthier, M.L., Rami, L. (2011).

Donepezil provides greater benefits in mild compared to moderate Alzheimer's. *Archives of Gerontology and Geriatrics*, 52 (1), 18–22. doi: 10.1016/j.archger.2009.11.004

Raji, M.A., Rang, R.A., Heyn, P.C., Kuo, Y., Owen, S.V., Singh, S., & Ottenbacher, K.J. (2005). Screening for cognitive impairment in older adults attending an eye clinic. *Journal of the National Medical Association*, 97 (6), 808–814.

Shiroky, J.S., Schipper, H.M., Bergman, H., & Chertkow, H. (2007). Can you have dementia with an MMSE score of 30?. *American Journal of Alzheimer's Disease and Other Dementias*, 22 (5), 406–415. doi: 10.1177/1533317507304744.