

Abstract

Purpose: To compare cultural bias in the SWICA, a novel tool for memory screening AI older adults in Arizona, with the MoCA, a validated memory screening tool in common use.

Methods: Retrospective comparison of coded participant responses to 16 questions about their cultural context. Intrasample variation on MoCA and SWICA tests was controlled by using the participants as their own controls. Data were analyzed using a multiple regression general linear model on SPSS software.

Results: Scores on the SWICA test were independently associated with English use in the home (Beta = .396, $p = .026$), years of education (Beta = .335, $p = .027$), and ease of learning (Beta = .361, $p = .029$), but not age (Beta = -.366, $p = .054$). Scores on the MoCA test were independently associated with age (Beta = -.491, $p = .001$), English use in the home (Beta = -.320, $p = .039$), and years of education (Beta = -.284, $p = .030$), but not ease of learning (Beta = -.267, $p = .067$).

Conclusions: Scores were similar on both tests ($t = -3.934$, $p = .001$), and were independently associated with English use in the home and years of education. SWICA was uniquely associated with ease of learning and MoCA was uniquely associated with age. The former may indicate that the SWICA has a steeper learning curve, and the latter may mean the MoCA is skewed to age independent of memory issues. Both issues merit further study.

Introduction

Recent census data estimate that 8.5% of American Indian (AI) individuals are over the age of 65. Despite this growing population, many AI older adults and their families are uninformed about dementia resources. Commonly used memory screening tools such as MMSE, MoCA, and SLUMS give results inconsistent with the individuals' level of functioning according to multiple reports. While validated, these tools do not include enough AI individuals in their validation studies to determine if this cultural variation would be a factor in screening. The purpose of this study was to compare the Southwestern Indigenous Cognitive Assessment (SWICA) a novel tool for screening AI older adults in Arizona, with the MoCA, a commonly used memory screening tool for comparison of cultural bias.

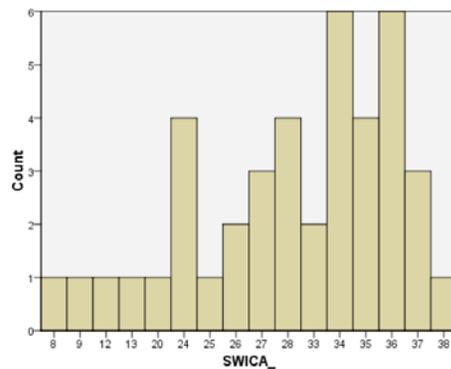


Figure 1: Frequency count of SWICA scores among participants

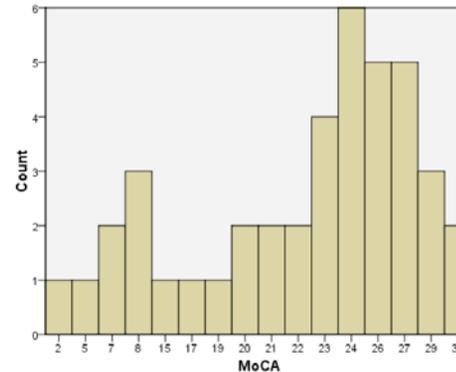


Figure 2: Frequency count of MoCA scores among participants

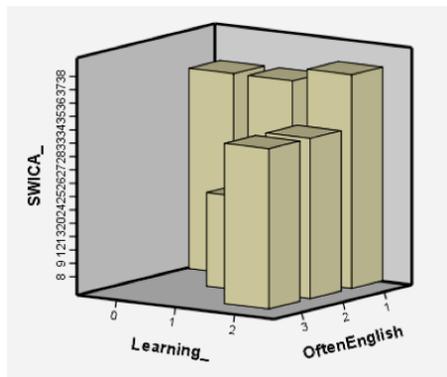


Figure 3: Relationship of SWICA score to ease of learning and how often English is spoken in the home

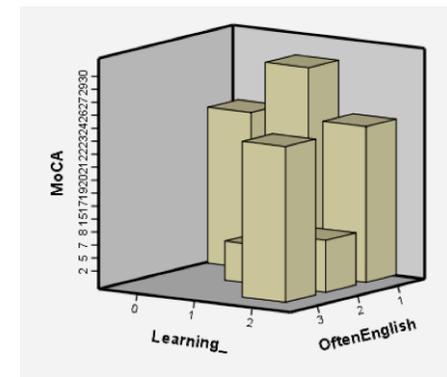


Figure 4: Relationship of MoCA score to ease of learning and how often English is spoken in the home

Methods

Deidentified screening data were collected from 41 participants who self-identified from 13 different tribes after a series of memory screening events for AI older adults around the state of Arizona. Cultural bias in the MoCA was assessed by retrospectively comparing coded participant responses to 16 questions about their upbringing and current cultural context. This design was later modified to employ enhancements to the experimental tool (SWICA) and compare raw scores against the control MoCA tool. Intrasample variation was controlled by using the participants as their own controls. Data were analyzed using a multiple regression general linear model on SPSS software.

Discussion and Conclusions

Participant raw scores were similar on both SWICA and MoCA ($t = 3.934$, $p = .001$). Scores on both tests were independently associated with English use in the home and years of education. SWICA was uniquely associated with ease of learning and MoCA was uniquely associated with age. The former may indicate that the SWICA has a steeper learning curve, and the latter may mean the MoCA is skewed to age independent of memory issues. Both issues merit further study.

Limitations and Future Directions

The major limitations of this study include the novel tool under examination, the small sample size, self-reported cultural markers, and the absence of longitudinal data to examine the long-term outcomes of participants. Because both raw scores and relationships between measures of cultural bias were statistically similar between MoCA and SWICA, a logical next step would be formal validation of the SWICA as a memory screening tool with a larger sample of AI older adults.

Acknowledgements

The authors wish to dedicate this project to the participants whose warmth, wisdom, and generosity made it possible. Thanks to Dr. Vicky Lomay, PhD for her considerable efforts and expertise that led to the development of the SWICA. Thanks also to Jan Dougherty, MS, RN, FAAN and colleagues at the Banner Alzheimer's Institute for organizing the multiple screening events that facilitated the accumulation of these valuable data.

	β SWICA	p	β MoCA	p
Age	.366	.054	-.491	.001*
Gender	-.041	.768	-.152	.881
Tribal affiliation	-.090	.610	-.020	.895
English 1st language	-.045	.784	.176	.209
English use in the home	.396	.026*	-.320	.039*

	β SWICA	p	β MoCA	p
Childhood tribal involvement	0.27	.877	.059	.694
Current tribal involvement	-.146	.430	.034	.832
Attended school	-.051	.755	-.200	.145
Urban/rural/reservation school	-.133	.397	-.092	.770

	β SWICA	p	β MoCA	p
Public/private/religious/boarding school	.085	.541	-.040	.517
Years of education	.335	.027*	-.284	.030*
Ease of learning	.361	.029*	-.267	.067
Employment status	-.249	.099	.134	.315
Type of employment	-.178	.250	.110	.412

Table 1: Multiple regression Beta values for selected self-reported cultural markers as they relate to scores on the SWICA and MoCA, respectively. *significant at $p < 0.05$. β SWICA = Beta value for regression with SWICA score as the dependent variable. β MoCA = Beta value for regression with MoCA score as the dependent variable.