

Comparison of the Texas Functional Living Scale and Wechsler Memory Scale– Fourth Edition in a Mild Alzheimer Disease Sample

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Introduction

The *Texas Functional Living Scale* (TFLS; Cullum, Weiner, & Saine, 2009) is a newly published performance-based measure of instrumental activities of daily living (IADLs). The TFLS consists of 24 items that contribute to four subscales representing various IADLs. The subscales are: Time, Money and Calculation, Communication, and Memory. Many items provide a range of possible points accounting for the varying levels of functioning that may appear in clinical populations (Binegar, 2007). Each subscale yields a cumulative percentage. An overall T-score is provided to help determine the examinee's ability to function independently.

The *Wechsler Memory Scale–Fourth Edition* (WMS-IV; Wechsler, 2009) is an individually administered battery designed to assess various memory and working memory abilities; it is the most recent edition of the *Wechsler Memory Scale*. Two batteries are available within the WMS-IV, an Adult Battery and an Older Adult Battery. The WMS-IV Older Adult Battery was used for this study. The Older Adult Battery does not contain all of the subtests provided in the Adult Battery leading to a decrease in overall administration time and minimizing examinee fatigue. The Older Adult Battery consists of four subtests, three of which are divided into immediate and delayed conditions. The four subtests contribute to four summary Indexes: Auditory Memory, Immediate Memory, Delayed Memory, and Visual Memory. The WMS-IV also contains a brief measure of cognitive status. The Brief Cognitive Status Exam (BCSE) assesses a variety of cognitive functions and provides an overall picture of the examinee's functioning. The BCSE Total Raw Score is converted into a classification level ranging from Very Low to Average.

Alzheimer Disease (AD) involves impairment in memory and cognitive disturbances accompanied by significant impairment in social and occupational functioning. Many individuals who later develop dementia experience subtle changes in IADLs several years before the formal diagnosis of dementia. Given the sensitivity of IADLs to this disease process, it is imperative to identify deficits early on to maximize efficacy of interventions.

Objective

The objective of this study is to determine the sensitivity of a newly developed measure of IADLs to the impairments of AD.

Methods

Procedures

35 individuals identified with AD were administered the standardization editions of the TFLS and the WMS-IV Older Adult Battery.

This table shows the raw score conversions for the TFLS subtests. It includes columns for the subtest name, raw score, and the corresponding percentage score. The subtests are Time, Money and Calculation, Communication, and Memory. The overall TFLS score is also indicated.

Example of TFLS Scoring Summary Page

This table shows the scores for the WMS-IV Older Adult Battery subtests. It includes columns for the subtest name, raw score, and the corresponding index score. The subtests are Logical Memory I, Verbal Paired Associates I, Visual Reproduction I, and Symbol Span. The overall WMS-IV score is also indicated.

Example of WMS-IV Scoring Summary Page

Participants

The sample consisted of 35 individuals, ages 61–89 that were identified with Probable Alzheimer Disease–Mild Severity. The sample was collected as part of the TFLS and WMS-IV standardizations. Diagnostic criteria followed The National Institute of Neurological and Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association (NINCDS-ADRDA) guidelines for probable AD. The demographic information for the sample is reported in Table 1.

Results

The AD sample was mildly to moderately impaired (T-score= 32) on TFLS. Performance on WMS-IV ranged from Extremely Low (DMI= 66) to Borderline (IMI= 72). The overall Brief Cognitive Status Exam classification was Very Low (BCSE Total Raw Score= 31). The mean TFLS T-Score and WMS-IV subtest and index scores are presented in Table 2.

Correlation Data

Correlations between TFLS T-Score and WMS-IV subtest scores ranged from .46 (Logical Memory II) to .60 (Logical Memory I, Verbal Paired Associates II, Visual Reproduction I). Index score correlations ranged from .57 (DMI) to .67 (IMI) indicating memory functioning is moderately related to IADLs in an AD sample. Table 2 presents the TFLS and WMS-IV correlations.

Table 1. Demographic Data

Variable	Value
N	35
Age	
Mean	79.1
SD	6.9
Sex	
Female	65.7
Male	34.3
Race/Ethnicity	
White	94.3
African American	5.7
Education	
≤8 years	2.9
9–11 years	25.7
12 years	25.7
≥16 years	45.7
Region	
Northeast	5.7
South	65.7
Midwest	17.1
West	11.4

Note. Except for sample size (N) and age, data are reported as percentages.

Table 2. Mean Scores and Correlations Between TFLS and WMS-IV

Score	Brief Cognitive Status Exam Total Raw Score	WMS-IV Subtests								WMS-IV Indexes				TFLS		
		Logical Memory I	Logical Memory II	Verbal Paired Assoc. I	Verbal Paired Assoc. II	Visual Repro. I	Visual Repro. II	Symbol Span	Auditory Memory	Visual Memory	Immediate Memory	Delayed Memory	Mean	SD	N	
TFLS T-Score		.60	.46	.58	.60	.50	.50	.50	.62	.66	.67	.57				
WMS-IV Mean Scores																
Mean	31.1	6.0	4.3	5.2	5.0	5.7	4.7	6.7	69.5	71.6	72.1	65.7				
SD		3.6	3.6	3.2	3.5	3.6	3.4	3.3	20.1	20.0	19.9	21.0				
N		35	35	35	34	35	35	35	34	35	35	34				

Conclusion

The results of this study are consistent with previous studies; individuals identified with AD show impairment in overall memory functioning and instrumental activities of daily living. This study provides initial evidence of the validity of TFLS as a reliable assessment of IADLs.

References

- Binegar, D.L. (2007). *Performance on the Texas functional living scale (TFLS) in mild cognitive impairment*. Unpublished doctoral dissertation, The University of Texas Southwestern Medical Center at Dallas, Texas.
- Cullum, C.M., Weiner, M.F., & Saine, K. (2009). *Texas functional living scale*. San Antonio, TX: Pearson.
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