The Pillbox Test: Does It Have Sufficient Construct Validity as a Measure of Instrumental Activities of Daily Living?

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OBJECTIVE

- The Pillbox Test (Zartman et al., 2013) has adequate construct validity as an executive functioning measure and discriminant validity for detecting dementia.
- **We examined the construct validity of Pillbox Test as a measure of instrumental activities of daily living (IADLs).**

METHOD

- 62 veterans (93.5% male): 51.6% White, 32.3% Hispanic/Latinx, 16.1% Black
  - 71% monolingual (English)
  - 29% bilingual (English/Spanish)
- Variables of interest/Tests Completed:
  - Pillbox Test:
    - Total Pill Errors
    - Pass/Fail (>4 errors = Fail, Logue et al., 2015)
  - TFLS: Total Raw Score
  - GDS-SF: Total Score
- Data analyses:
  - Spearman correlation; Mann-Whitney U

RESULTS

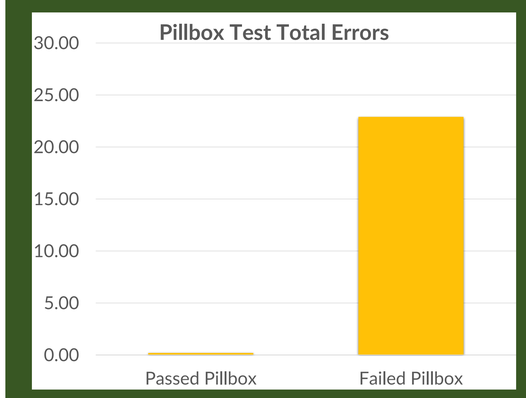
- Moderate, negative correlation between Pillbox Test errors and TFLS Total T-score
- No significant correlation between GDS-SF and Pillbox Test errors.
- Those passing Pillbox Test had significantly higher TFLS Total T-Scores.
- The GDS-SF Total Score did not differ across Pass/Fail Groups.

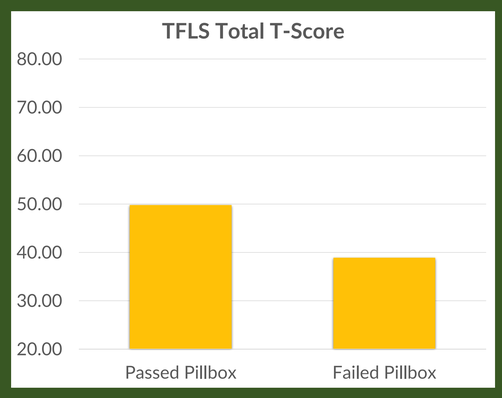
CONCLUSIONS

- **Pillbox Test has adequate construct validity**
  - Convergent validity: correlated with a measure of IADL functioning
  - Divergent validity: unrelated to unrelated measure of mood

The Pillbox Test has adequate construct validity as an IADL measure among a diverse older-adult sample.

Mean Test Scores for Pillbox Test Pass/Fail Groups





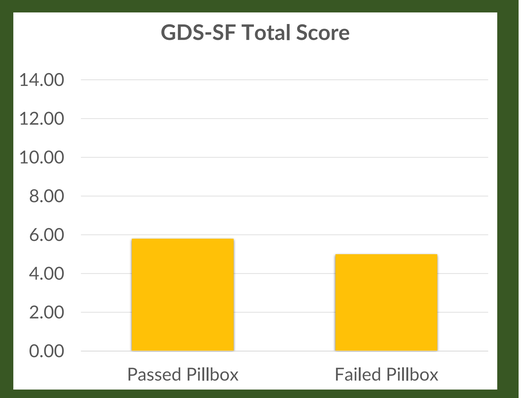


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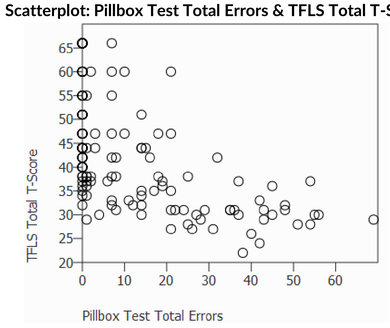
Table 1. ***Demographic and clinical characteristics of the sample***

	Overall Sample *n* (%)	Passed Pillbox *n* (%)	Failed Pillbox *n* (%)	Test Statistic/ Sig.
Overall Sample	62	37 (59.7)	25 (40.3)	
Gender				
Male	58 (93.5)	33 (56.9)	25 (43.1)	χ^2=2.89
Female	4 (6.5)	4 (100.0)	9 (0.0)	
Race/Ethnicity				
White/Caucasian	32 (51.6)	24 (75.0)	8 (25.0)	χ^2=6.52*
Hispanic/Latinx	20 (32.3)	9 (45.0)	11 (55.0)	
Black/African American	10 (16.1)	4 (40.0)	6 (60.0)	
Language				
Monolingual (English)	44 (71.0)	29 (65.9)	15 (34.1)	χ^2=2.45
Bilingual (Engl./Spanish)	18 (29.0)	8 (44.4)	10 (55.6)	
Primary Diagnosis				
No diagnosis	9 (14.5)	9 (100.0)	0 (0.0)	χ^2=17.42***
MCI/mild NCD	16 (25.8)	12 (75.0)	4 (25.0)	
Dementia/major NCD	24 (38.7)	7 (29.2)	17 (70.8)	
Psychiatric	13 (21.0)	9 (69.2)	25 (40.3)	
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	
Age	67.5 (7.1)	67.2 (6.7)	68.1 (7.6)	*t*=0.50
Education	13.2 (2.7)	13.2 (2.6)	13.1 (3.0)	*t*=-0.06
Pillbox Test Total Errors	9.3 (13.8)	.2 (0.5)	22.9 (12.7)	*U*[ns]***
TFLS Total T-Score	45.4 (12.3)	49.8 (11.1)	38.9 (11.2)	*U*[ns]***
GDS-SF Total Score	5.4 (3.7)	5.8 (3.7)	5.0 (3.8)	*U*[ns] not sig.

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; *U*[ns] = Independent-Samples Mann-Whitney U Test. Failed pillbox if >4 errors. MCI = mild cognitive impairment; NCD = neurocognitive disorder

Scatterplot: Pillbox Test Total Errors & TFLS Total T-Score



Scatterplot: Pillbox Test Total Errors & GDS-SF Total Score

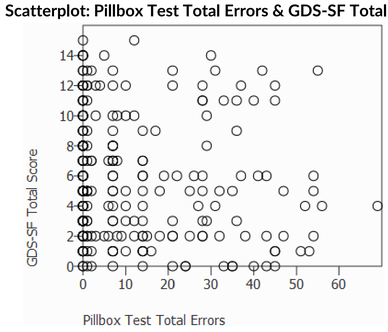


Table 2. ***Spearman correlation analyses***

	Pillbox Test Total Errors	
	r	*p*
TFLS Total Raw Score	-.598	<.001
GDS-SF Total Score	-.109	.401

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