

## Background

- Story memory or paragraph recall tests are commonly used methods for assessing episodic verbal memory in clinical and research settings. One frequently encountered problem relates to “practice effects”, or improvement, when the same verbal memory tasks are given multiple times.
- Perhaps the most commonly used story recall task is the Logical Memory (LM) subtest from the Wechsler Memory Scale (WMS). Currently, few validated and reliable alternative story memory measures exist.
- Overall Aim** The goal of current study was to examine the validity of an alternate subset of story paragraphs, taken from the Newcomer stories (NS). This series consists of 7 alternate stories, designed by Newcomer et al. (1999), in a form similar to the WMS LM subtest. To date, no normative data have been published for these paragraphs. In this study we compared two Newcomer Stories with the Logical Memory stories from the WMS-III.

### Newcomer Stories

### WMS-R Re-administration at 2-Week Intervals

44 “bits”

7 alternate versions

No published normative data

	Mean	SD	Relative % Δ	Cumulative % Δ
<b>Logical Memory I</b>				
Session 1	27.80	6.28		24.46
Session 2	34.60	7.48	24.46	35.61
Session 3	37.70	6.56	8.96	35.61
Session 4	39.06	6.56	3.61	40.50
<b>Logical Memory II</b>				
Session 1	24.23	6.61		34.50
Session 2	32.59	8.42	34.50	34.50
Session 3	35.95	7.19	10.31	48.37
Session 4	38.09	6.92	5.95	57.20

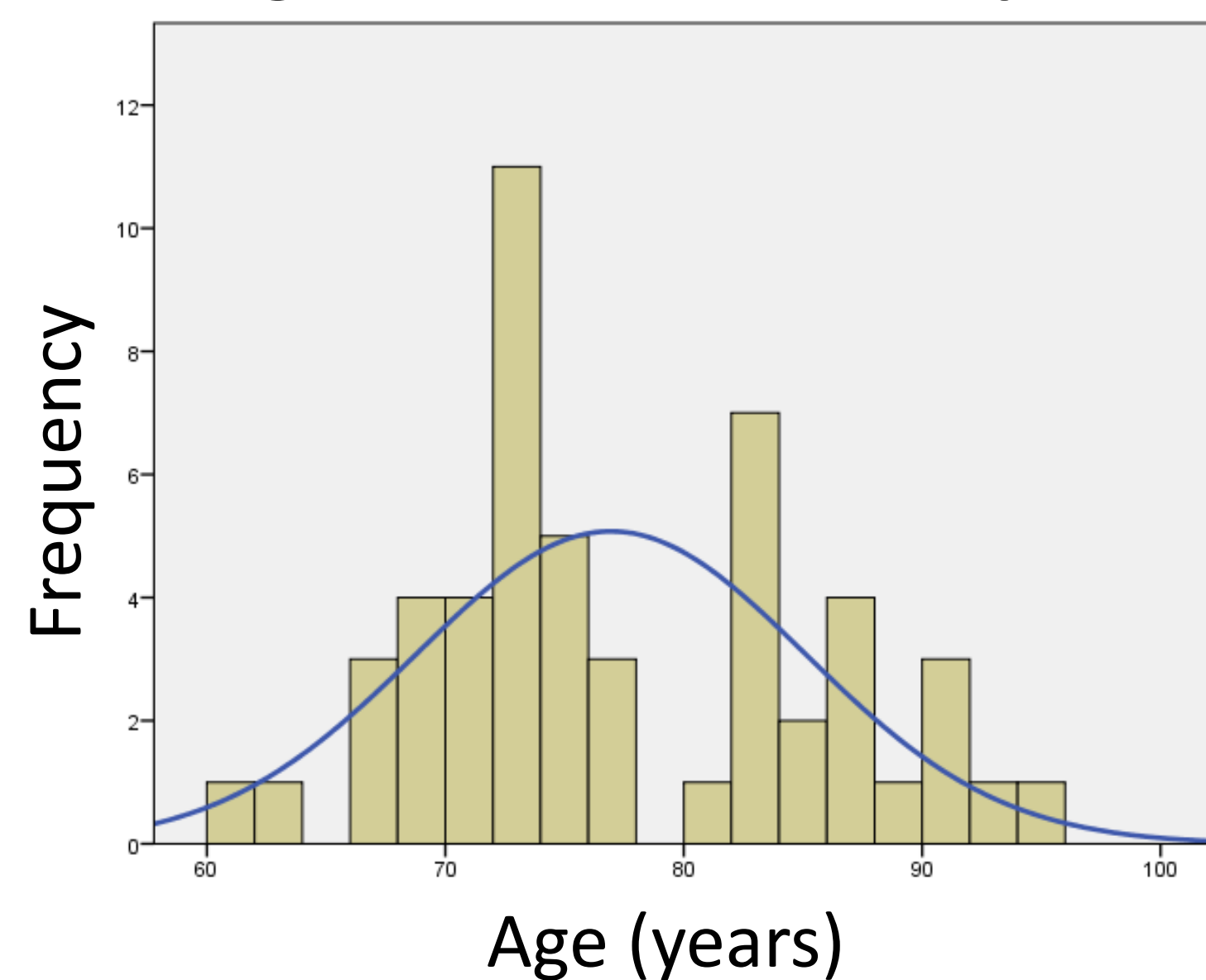
Theisen, Rapport, Axelrod, & Brines (1998)

## Specific Aims

- Aim 1:** Do verbatim scores on the Newcomer Stories 1 & 2 correlate with traditional scores on the WMS-III Logical Memory stories A & B?
- Aim 2:** Do “new” thematic scores of Newcomer Stories correlate with traditional thematic scores of WMS-III Logical Memory stories?
- Aim 3:** Do scores on the Newcomer Stories 1 & 2 relate to other verbal memory tasks (convergent validity), but less so to other cognitive tasks (divergent validity)?

## Participants

### Age Distribution of Sample



	Mean (SD)	Min.	Max.
<b>Age</b>	76.9 (8.2)	61	94
<b>Gender (% female)</b>	73.1	-	-
<b>Education</b>	16.8 (2.2)	12	21
<b>Race (% Caucasian)</b>	96.2	-	-
<b>MMSE</b>	29.2 (1.0)	26	30
<b>BDI-II</b>	5.8 (5.1)	0	29
<b>STAI-state</b>	28.6 (8.2)	20	59
<b>STAI-trait</b>	29.2 (7.6)	20	51

- No significant medical or mental health problems
- Recruited from The Village, an independent senior living community, Gainesville FL
- All healthy controls for Re-Vitalize study of older adults

## Methods

- Each participant was administered both LM and NS on different days along with other cognitive measures.
- LM scored according to published methods, NS scored according to verbatim and newly developed thematic scoring (similar to WMS-III LM).
- Two raters for new thematic scoring (IRR = 0.940-0.984). Average of both raters was used to create a composite variable for each NS story.

### Verbatim

- Score 1 point per “bit”
- Score 0.5 points if lexical root and phoneme is the same but content is changed
- Order of recall is irrelevant

### Thematic

- Score 1 point per correct Story Unit
- Similar to Logical Memory scoring criteria

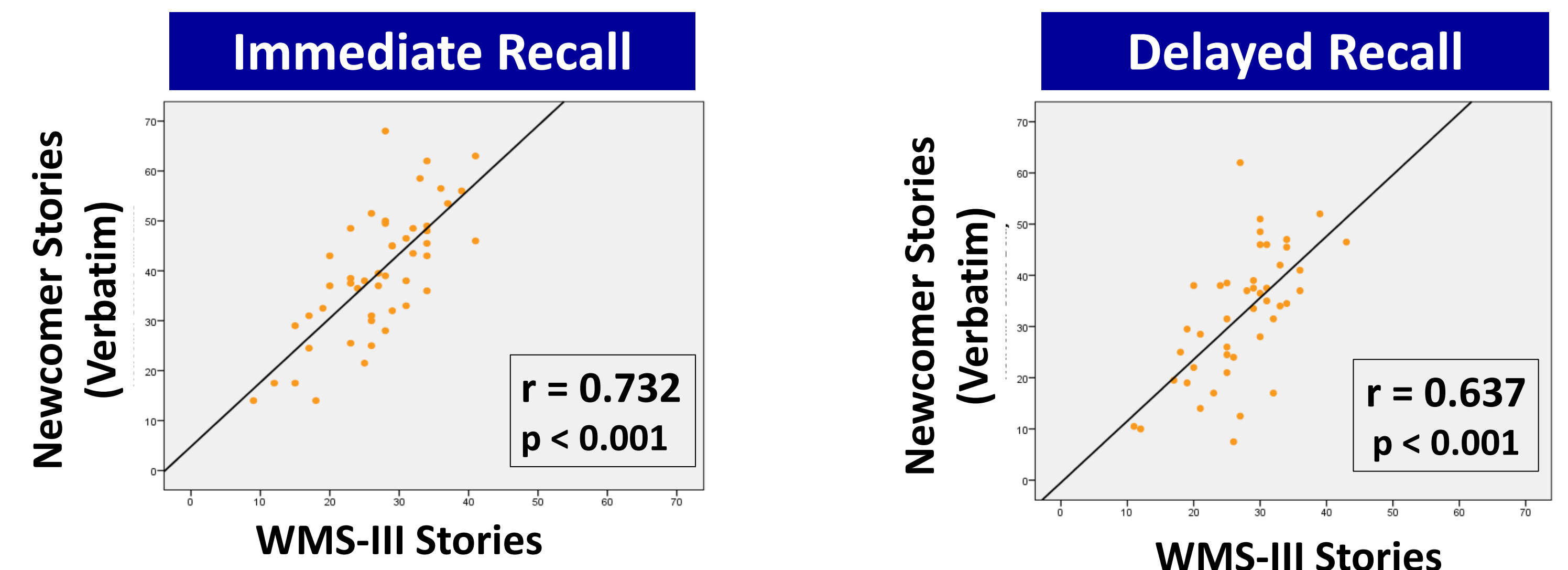
## Newcomer Stories

Lucy / Carson, / while / visiting / her / brother / in a small / city / in Virginia, /

Story 1	Story Unit (Imm)	Story Unit (Delay)	Scoring Criteria
Lucy			Lucy or variant of the name (e.g. Lucille)
Carson,			Carson is required
while visiting her brother			Indication that main character is seeing her brother
in a small			Small or some form of the word is required (e.g., tiny, little)
city			City or some form of the word is required (e.g., town)
in Virginia,			Virginia is required

## Results

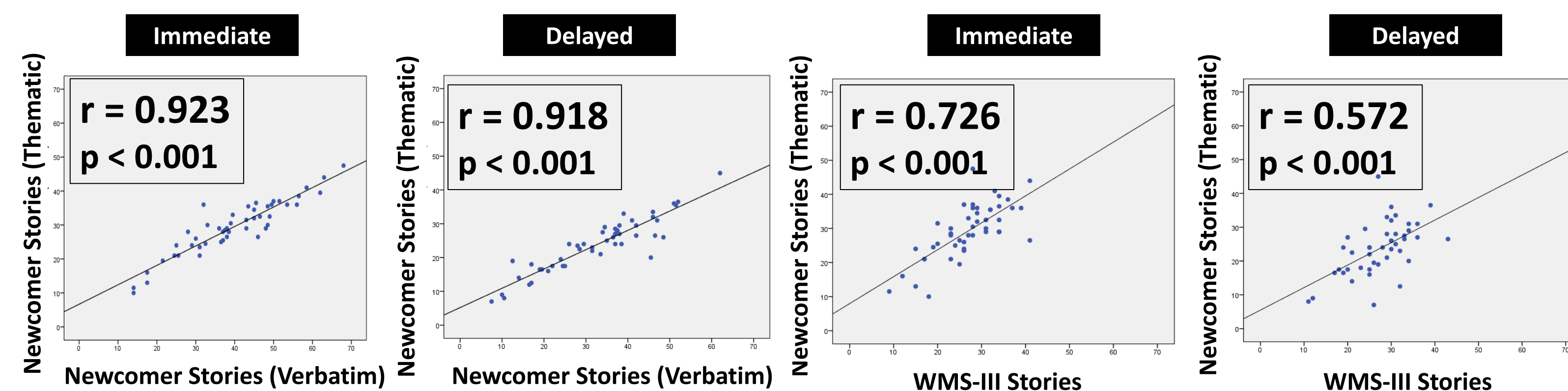
### Aim 1: Newcomer Stories (verbatim) correlate with WMS-III Logical Memory Stories, both Immediate recall and Delayed recall



### Aim 2: Newcomer Thematic scoring significantly correlates with Verbatim scoring & WMS-III - both Immediate & Delayed recall

#### Newcomer: Thematic correlates with Verbatim

#### Thematic Scoring: Newcomer correlates with WMS-III



### Aim 3: Newcomer Stories show convergent validity with other verbal memory tasks & divergent validity with measures of visuospatial and processing speed

	WMS-III Imm.	NS (V) Imm.	NS (T) Imm.	HVLT Trial 1	WMS-III Delay	NS (V) Delay	NS (T) Delay	HVLT Delay	Stroop Word	Trails A	Digit-Symbol	JOLO
WMS-III Imm	-											
NS (V) Imm	0.732*	-										
NS (T) Imm	0.726*	0.923*	-									
HVLT Trial 1	0.574*	0.514*	0.532*	-								
WMS-III Delay	0.790*	0.618*	0.611*	0.676*	-							
NS (V) Delay	0.651*	0.787*	0.842*	0.525*	0.637*	-						
NS (T) Delay	0.653*	0.856*	0.894*	0.535*	0.572*	0.918*	-					
HVLT Delay	0.672*	0.554*	0.616*	0.682*	0.650*	0.535*	0.518*	-				
Stroop Word	0.205	0.151	0.120	0.242	0.344*	0.227	0.167	0.158	-			
Trails A	-0.105	-0.091	-0.182	-0.206	-0.127	-0.192	-0.211	-0.094	-0.292*	-		
Digit-Symbol	0.127	0.125	0.124	0.171	0.197	0.211	0.189	-0.020	0.374*	-0.547*	-	
JOLO	0.027	0.204	-0.060	-0.018	-0.204	0.008	-0.010	-0.023	-0.004	-0.156	0.224	-

Multitrait-multimethod matrix (Campbell & Fiske, 1959)

## Conclusions & Future Directions

Newcomer Stories may be a valid alternative to Logical Memory stories as an index of verbal episodic memory in older adults. Results are promising in this highly educated (mean = 16 yrs), non-demented, Caucasian sample (mean = 77 yrs).

- Next Step:** Need additional norms in lower SES groups with greater diversity as well as other age groups.

Price et al (2010) found positive associations between (left) entorhinal cortex volume and verbatim scoring of Newcomer Stories. Petersen et al (2000) found an association between left hippocampal volume and WMS-R LM in an AD group.

- Next Step:** Are there different associations between verbatim and thematic scoring methods and volumetric measurements of brain areas responsible for memory?

### Prediction:

