Preliminary Evaluation of the TimeSlips Story-Telling Program on Descriptive Discourse Abilities in Older Adults with Dementia

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#### Dementia

- Currently affects ~70% of nursing home residents
- Loss of cognitive abilities affecting various domains
  - Includes deficits in memory, executive functioning, language, visuospatial abilities, personality and behavior
- Severe enough to affect the ability to compensate and live independently
- Most common cause is Alzheimer's disease

Language Abilities in People with Dementia

- Abilities decrease with disease progression
- Difficulties often lead to deficits in spoken discourse
  - Discourse = use of language in social context / language used for a specific purpose that is longer than a simple clause

#### Discourse

- Various types:
  - **Descriptive**
  - Narrative
  - Personal
  - Procedural
  - Expository
  - Persuasive
  - Conversational

### Dementia Intervention

- No cure for Alzheimer's or other causes of dementia
- Early stages → preserve or improve function and quality of life
- Later stages → focus shifts to maintaining and facilitating meaningful interactions and quality of life

### Dementia Intervention

- Interventions tend to be nonpharmacological and often behavioral
  - Includes various programs and activities
    - TimeSlips

## TimeSlips Program

- Creative story telling program
- Groups of people create a story based off a predetermined picture stimuli
- Failure free context
  - No wrong answers
- Facilitates discourse without enforcing traditional rules

# TimeSlips Program

- Previous research
  - Little evidence evaluating the impact on language
  - Indicates improved quality of life
- It is possible that participating in this descriptive based program may positively impact discourse abilities

#### Primary Aim

 Primary aim: to examine if TimeSlips improves descriptive discourse abilities in older adults with mid-late stage dementia

#### Hypothesis

 We <u>hypothesize</u> that following 10 stories of TimeSlips there will be a gain in participants mean length of utterance (MLU), spoken utterances, correct information units (CIU), and improvements on a main concept analysis (MCA) in a descriptive discourse task

#### Measures

- # of Utterances  $\rightarrow$  utterances per task
- MLU  $\rightarrow$  average length of utterances
- CIU → content and function words related to the stimuli
- MCA → identification of predetermined main concepts

### Secondary Aim

 A secondary aim is looking at the impact of TimeSlips on quality of life as measured by the Quality of Life in Alzheimer's Disease (QOL-AD)

# Companion Study

 Assessing TimeSlips impact on narrative and personal discourse abilities

### Discourse Comparisons

Descriptive = Describing (picture description) Narrative = Telling of an event (Cinderella) Personal = Personal experiences

#### Hypotheses

• Descriptive > Narrative & Personal Discourse

#### Participants

- 7 total
  - 6 female, 1 male
  - Ages: 85-94
- All resided in a memory care unit in Newark, DE.

### Pre-Treatment Assessment

- Approximately 20 minutes
- Administration of QOL-AD
- Descriptive discourse measures
  - Birthday Cake vs Cat in the Tree picture
- Narrative discourse measures
  - Cinderella story
- Personal discourse measures
  - Personally relevant story

Descriptive Discourse Measures

- Birthday Cake & Cat in the Tree picture stimuli
  - Black and white line drawn photos
  - Depict a story like scene





#### Prompt

 "I want you to look at this picture and tell me a story that has a beginning, middle and end"

## TimeSlips Program

- 3 days, 10 sessions
- Each story was ~15-30 minutes
- Facilitators were certified through TimeSlips website
- Norman Rockwell paintings
- Open group room
- Participants provided pictures stimuli and prompted with open ended questions
  - Ex: "Where do you think this takes place?"

### Why Norman Rockwell Paintings?

- Commonly used in research
- Contextually rich
- Often represent an era that is salient to this population



An example of a Norman Rockwell painting used.

Participants created a story based off this stimuli and named it, "The Day at the Zoo".





### Post Treatment Assessment

- Same process as pre-treatment
- Picture stimuli were counterbalanced

#### **Pre-testing**

1. QOL-AD



2. Descriptive Discourse Task



3. Narrative Discourse Task

4. Personal Discourse Task

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x 10



https://www.timeslips.org/about

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#### Post-testing

1. QOL-AD



2. Descriptive Discourse Task



- 3. Narrative Discourse Task
- 4. Personal Discourse Task

Language Transcripts and Analysis

- The discourse samples during the pre and post treatment assessments were audio recorded, transcribed and coded
- Discourse samples were coded for:
  - Mean Length of Utterance (MLU)
  - # of Utterances
  - Main Concepts
  - Correct Information Units
  - Additional Prompts

### Study Aim

- Changes in:
  - # of utterances
  - MLU
  - CIU
  - MCA
  - QOL
- Compared to companion study

- Researchers compared scores from pre and post testing
  - MLU
  - # of Utterances
  - Main Concept Analysis Scores
  - Correct Information Units
  - Additional Prompts
  - QOL-AD scores
- Analyzed scores using the Wilcoxon signed rank test

#### Group Statistical Changes

Domain	Pre-Intervention Median	Post- Intervention Median	Wilcoxon Z	P-Value
OOL AD tatals	20	25	044	245
QOL-AD totals	38	55	944	.345
MLU picture stimuli	7.8	5.67	-1.183	0.237
Utterances picture stimuli	11	15	-1.362	.173
MCA picture stimuli	2	0	-1.095	.273
CIU picture stimuli	47.6%	16.82%	-1.859	.063
Prompts picture stimuli	3	8	850	.395

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- No significant changes in any of the dependent measures
  - MLU
  - Number of Utterances
  - Main Concept Analysis
  - Correct Information Units
  - Prompting
  - Quality of Life

Narrative Discourse Changes

- Cinderella Task
  - Increase in spoken utterances
  - Increase in correct information units





#### **Descriptive Discourse**





# Summary

- Results → TimeSlips was not effective in improving dependent measures in descriptive discourse task
- Companion study showed improvement in 2 measures for the narrative discourse task
- Against hypotheses, the narrative discourse scores yielded statistically significant improvements where descriptive discourse did not

### Possible Explanations

- Difference in picture stimuli
  - Assessment vs treatment picture stimuli
- Practice effect
  - Counterbalanced picture stimuli vs a consistent fairytale

### Possible Explanations

- Unreliable results
  - Due to a small sample
- Dosage
  - Sufficient to improve narrative discourse but not descriptive
- Variation in prompts
  - Assessments vs Program

### Possible Explanations

- Quality of life measures
  - Various measures, qualitative measures
- Participant engagement
- TimeSlips has no impact on descriptive discourse
  - Population, program, structure

## Lastly

 Although not displayed in long term measures, participants appeared to really enjoy TimeSlips in the moment and as a break from normal daily activities!



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