

# Financial Capacity in a Community Dwelling Sample: Correlations between Performance-Based Measures and Self-Report Bill Payment Methods



Colleen Donahue, Catherine Sumida, Alyssa Weakley, & Maureen Schmitter-Edgecombe

Washington State University, Department of Psychology



## Introduction

- Financial management capacity may be an early instrumental activities of daily living (IADL) indicator of negative cognitive changes and the most sensitive to distinguishing between stages of cognitive impairment.
- Financial management behavior is shifting as technology-based tools are becoming increasingly available and utilized.
- The majority of measures examining financial capacity do not investigate computer skills or the ability to navigate new technology.
- This study examined self-reported technology and non-technology based bill payment methods compared to performance on financial capacity performance-based measures.

## Hypothesis

- We predicted that more frequently using a bill payment method, such as paying with check, would positively correlate to scores on similar performance-based financial capacity measure tasks, such as balancing a checkbook.

## Methods

### Participants

- Participants were 43 community dwelling older adults with either healthy cognition or mild cognitive impairment (see Table 1)

**Table 1.** Characteristics of the Healthy Older Adult (HOA) and Mild Cognitive Impairment (MCI) groups

Test Variable	Mean		SD	
	HOA (n = 25)	MCI (n = 18)	HOA (n = 25)	MCI (n = 18)
Age (years)	74.2	80.3	9.8	7.4
Education (years)	16	15.3	3	3.1
Gender (% female)	64%	50%	-	-
Telephone Interview cognitive status	34	32	2.4	4.2

### Protocol

- Participants were interviewed about their bill payment methods with Likert ratings (1= never, 5= always).
  - How frequently do you....
    - ... pay bills with a check
    - ... pay bills using online checking or banking?
    - ... pay bills using automatic bill payment?
- Those who reported not managing their own finances were coded as a one for all questions (HOA = 1; MCI = 2).
- Participants were administered two performance-based measures of financial capacity (see Table 2) and two cognitive measures, the RBANS\* and WTAR\*

**Table 2.** Description of financial capacity measure subtasks

Measure	Task	Description
OTDL-R*	Cash	Examine a receipt and make change from \$10
	Checkbook	Balance a provided checkbook ledger given a deposit and withdrawal amount
	Balancing	Examine a provided bill, write a check for the appropriate amount due, correctly prepare the check and an envelope for mailing
	Bill Payment	
UPSA*	Cash	Count change for a given amount and make change from ten dollars
	Bill Knowledge	Respond to questions about a provided bill

**Table 3.** Spearman correlations between bill payment method and task performance for the total sample.

Self-report*How frequently do you...	OTLD-R		UPSA	
	Checkbook Balance task	Bill Payment Task	Cash task	Bill Knowledge task
"... pay bills with a check?"	0.134	0.265	0.140	0.292
"... pay bills using automatic bill payment?"	-0.108	-0.05	0.176	0.112
"... pay bills using online checking or banking?"	0.143	<b>0.344*</b>	0.179	<b>0.338*</b>

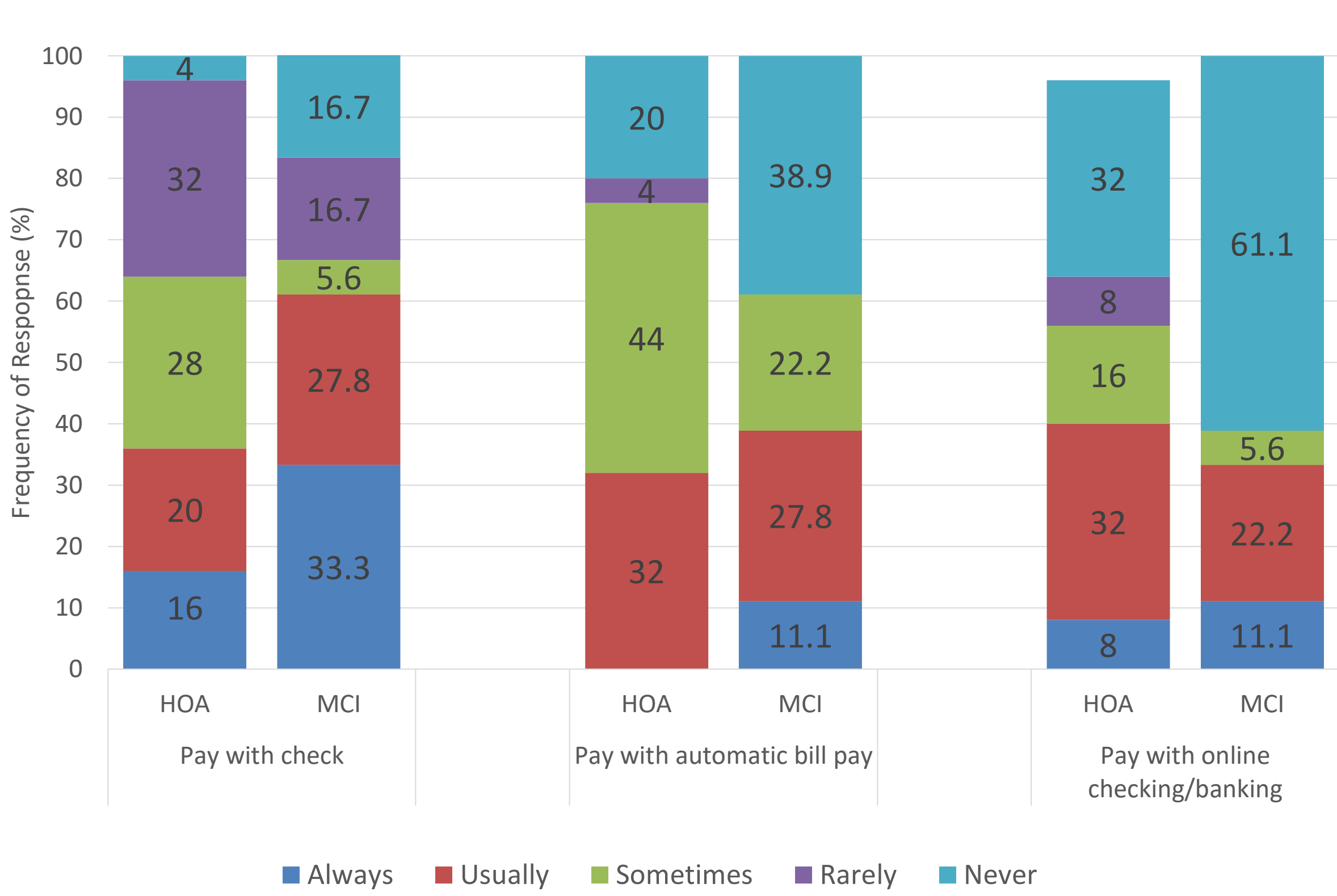
\*p < 0.05, \*\*p< 0.01

**Table 4.** Spearman correlations between frequency of using online banking/checking and bill tasks and cognition scores.

	RBANS total scale index score	WTAR standard score
Self-reported: "How frequently do you use online banking/checking?"	0.14	0.11
OTDL-R Bill Payment Task	<b>0.43**</b>	<b>0.39*</b>
UPSA Bill Knowledge task	<b>0.64**</b>	<b>0.48**</b>

\*p < 0.05, \*\*p< 0.01

**Figure 1.** Comparison of bill payment methods responses between HOA and MCI groups



**Table 5.** Spearman correlations for comparison of HOA and MCI groups between bill payment methods and task performance and WTAR standard score

Self-report: "How frequently do you..."	OTDL-R				UPSA			
	Balance a Checkbook Task		Bill Payment Task		CashTask		Bill Knowledge Task	
	HOA	MCI	HOA	MCI	HOA	MCI	HOA	MCI
"... pay bills with a check?"	-0.05	-0.06	-0.02	0.47	0.15	-0.48	0.28	0.32
"... pay bills using automatic bill payment?"	-0.05	-0.19	-0.13	0.01	0.01	0.27	0.05	-0.02
"... pay bills using online checking/banking?"	0.25	-0.21	0.13	<b>0.54*</b>	0.05	0.34	<b>0.45*</b>	0.19

\*p < 0.05, \*\*p< 0.01

## Results

- Ceiling effects were observed for the OTDL-R\* cash task so results were not further analyzed.
- T-test analyses comparing responses between HOA and MCI groups for each bill payment method revealed no significant difference between groups (Figure 1).
- As seen in Table 3 for the combined sample, Spearman rank correlation analyses revealed those who self-reported more frequently using online checking/banking for bill payment performed significantly better on the OTDL-R\* Bill payment task ( $r_s = .344, p < .05$ ) and the UPSA\* Bill knowledge task ( $r_s = .338, p < .05$ ).
- Table 4 shows that better performance on the bill tasks was also associated with higher scores on tasks of cognition (i.e., RBANS\*) and verbal abilities (i.e., WTAR\*). However, use of online banking did not correlate with wither cognition or verbal abilities.
- When separated by cognitive status (see Table 5), the use of online banking/checking for MCI participants correlated with the OTDL-R\* bill payment task ( $r_s = .540, p < .05$ ) and for HOA participants it correlated with the UPSA\* bill knowledge task ( $r_s = .454, p < .05$ ).

\*OTDL-R: Observed Tasks of Daily Living; \*UPSA: University of California San Diego Performance-Based Skills Assessment;  
\*RBANS: Repeatable Battery for the Assessment of Neuropsychological Status;  
\*WTAR: Wechsler Test of Adult Reading

## Discussion

- The hypothesis was not supported. However, the identified correlations suggest that overall regular engagement with bill payment behavior, in addition to cognitive abilities, may improve performance on performance-based financial capacity measures administered in the laboratory.
- Future research is needed to determine if online financial management decreases cognitive load on older adults, if it can help predict declining financial capabilities, and if the executive functioning skills required for online navigation assist or interfere with performance on clinic-based assessments.
- Limiting Factors**
  - The small sample size and that it was further divided by differences in cognitive status which has been shown to affect performance on financial capacity measures.
  - The performance-based measures were developed to assess financial capacity however the questions only addressed bill payment methods and were not sensitive to extraneous variables (e.g., recently taking over bill payment) that might influence the actual correlations.

### Acknowledgements

NIH: National institute on Aging Grant No. R25 AG046114; US Department of Education: Graduate Assistance in Areas of National Need (GANN) Grant No. P200A150115; NIH: National Institute of Biomedical Imaging and Bioengineering Grant No. R01 EB009675