



Objective Observation of Meal Preparation in Community-Dwelling Older Adults

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Introduction

- Instrumental activities of daily living (IADLs), such as meal preparation, involve complex cognitive abilities and allow individuals to maintain independence.
- As individuals age and cognitive abilities decline, functional abilities such as meal preparation also decline, resulting in an increased concern for safety in the kitchen.^{1 2}
- Self-report, informant-report, and performance based measures are used to assess a participant's ability to engage in everyday activities; however, the accuracy of these measures for predicting real-world performance is not always strong.
- Few studies have observed cooking behaviors in older adults,³ and no study to our knowledge has observed cooking behavior of older adults in their own home.

Objectives

- Determine whether observation of a meal preparation task in participants' own homes could capture cooking behaviors.
- Determine rate of agreement between self-report of cooking behaviors and cooking behaviors observed by an examiner.
- Examine relationships between cognitive and functional measures, and observed cooking behaviors.

Results

Table 2. Frequencies of Agreement vs. Disagreement of Cooking Behaviors

Cooking Behavior:	Does the participant keep an organized kitchen?	Does the participant get items out before starting to prepare a meal?	Does the participant clean while cooking?																														
Frequencies:	<table><tr><td colspan="3">Self-Report</td></tr><tr><td rowspan="3">Video - Observation</td><td>Yes</td><td>No</td></tr><tr><td>Yes</td><td>273</td></tr><tr><td>No</td><td>51</td></tr></table>	Self-Report			Video - Observation	Yes	No	Yes	273	No	51	<table><tr><td colspan="3">Self-Report</td></tr><tr><td rowspan="3">Video - Observation</td><td>Yes</td><td>No</td></tr><tr><td>Yes</td><td>187</td></tr><tr><td>No</td><td>74</td></tr></table>	Self-Report			Video - Observation	Yes	No	Yes	187	No	74	<table><tr><td colspan="3">Self-Report</td></tr><tr><td rowspan="3">Video - Observation</td><td>Yes</td><td>No</td></tr><tr><td>Yes</td><td>53</td></tr><tr><td>No</td><td>235</td></tr></table>	Self-Report			Video - Observation	Yes	No	Yes	53	No	235
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	77.8% accurately reported on their kitchen organization	61.1% accurately reported on their kitchen organization	27.8% accurately reported on their kitchen organization																														
	22.2% inaccurately reported on their kitchen organization	38.8% accurately reported on their kitchen organization	72.2% inaccurately reported on their kitchen organization																														

Table 3. Correlations of Cooking Behaviors and Variables of Interest

	# of Ingredients	Memory Concern	Organized Kitchen	Getting Items Out	Cleaning While Cooking
RBANS	0.060	-0.258	0.115	0.078	0.000
PRMQ	-0.264	0.474*	-0.221	-0.167	0.017
DEX	-0.290	0.448*	-0.142	-0.083	0.242
TICS	0.190	-0.423*	0.246	0.303	-0.115
QOL	0.190	-0.493*	0.432**	0.114	-0.034
IADL-C	-0.124	0.461*	-0.422**	-0.242	0.261
WTAR	0.288	-0.280	-0.023	0.358*	-0.247
FAS	0.306	-0.051	0.083	0.373*	-0.142
ILS-HS	0.297	-0.290	0.160	0.251	-0.212

‡Depression, EPT Meal Prep, and UPSA HM were not correlated with any variables

* p -value $\leq .05$

** p -value $\leq .001$

Results

- Having an organized kitchen had good overall agreement, getting items out had moderate overall agreement, and cleaning while cooking had poor overall agreement (see Table 2).
- Spearman's Rho found (see Table 3):
 - Existing performance-based measures used in the laboratory to assess everyday functioning associated with safety (ILS-HS) and meal preparation (UPSA HM, EPT) were not related to any observed behaviors.
 - Keeping an organized kitchen was associated with higher self-report of everyday functioning as measured by a general everyday functioning measure (IADL-C).
 - Getting items out was associated with higher premorbid intelligence (WTAR) and verbal fluency (FAS).
 - Concern about changes in memory was related to using less ingredients during the meal preparation task.

Methods

Participants:

- 36 community dwelling adults, 54 – 90 years of age ($M = 69.14$, $SD = 8.86$) from Eastern Washington and Western Idaho.
 - 30 females (83.3% of sample) and 6 males (16.7% of sample)
 - Education: $M = 15.14$; $SD = 2.88$; range 12 – 20 years
 - TICS (cognitive screener): $M = 33.80$; $SD = 3.35$; range 25 – 39
 - 88.5% of the sample expressed changed in their memory, with 45.2% stating concern about the changes (cognitive screener)

Procedure:

- Participants completed numerous questionnaires and neuro-psychological tests to examine variables of interest (see Table 1).
- Participants were instructed to prepare a light-lunch of their choosing.
- Video recordings of a meal preparation behavior that was completed in a participant's own home were viewed.
- Cooking behaviors that could be reliable observed by an examiner re-watching the videos were selected from 12 that participants self-rated in an IADL instrument:
 - Keeping the kitchen organized
 - Getting items out prior to preparing a meal
 - Cleaning while cooking
- The number of ingredients each participant used in the meal preparation task was also determined.

- Self-report data was on a 1-5 point Likert scale that indicated how often they completed the behavior from never (1) to always (5) but was re-coded dichotomously.
 - Sometimes, occasionally, and yes was coded as a yes (1) and rarely and no was coded as a no (0).
- Observation data was coded by watching the recording – if the participant engaged in a behavior, it was coded as yes. If not, it was coded as no.
- Two raters coded this data, and reached 100% agreement before comparing observational data to self-report data.

Table 1. Variables of Interest

Repeatable Battery for the Assessment of Neuropsychological Status (RBANS)	General Cognitive Functioning
The Prospective and Retrospective Memory Questionnaire (PRMQ)	Everyday Memory
The Dysexecutive Functioning Questionnaire (DEX)	Dysexecutive Functioning
The Modified Telephone Interview for Cognitive Status (TICS)	Cognitive Screener
The Instrumental Activities of Daily Living- Compensation (IADL-C)	Cognitive Screener
The Wechsler Test for Adults Reading (WTAR)	Premorbid Intelligence
Quality of Life Questionnaire (QOL)	Quality of Life
The Independent Living Scales Health and Safety Subtest (ILS-HS)	Health and Safety
UPSA Home Management (UPSA HM)	Functional Capacity
Geriatric Depression Scale (GDS)	Depression
Everyday Problems Test Meal Preparation (EPT Meal Prep)	Everyday Functioning - Meals

Discussion

- The meal preparation task is a good way to examine participants cooking behaviors, but needs more standardization.
- Frequencies between self-report and observed cooking behaviors found varying levels of agreement and future work with improved methodology is needed.
- Individuals who have better functional abilities may be able to keep their spaces more organized. Better organization may aid positive outcomes.
- Getting items out ahead of time was related to aspects of executive functioning and this may because it involves planning.
- Participants reporting changes in memory used fewer cooking ingredients, perhaps as a means of compensation.
- The three cooking behaviors did not measure aspects of kitchen health and safety.

Limitations:

- Only three cooking behaviors were measured.
- The type of lunch chosen by participant to make could affect the likelihood of engaging in a behavior.
- The observational measure was not designed alongside the self report.
- The sample was largely female.

Future Directions:

- Designing a second study based on these results.
- Will heavily examine kitchen safety, which is likely to have stronger relationships with performance based measures, functional measures, and cognitive abilities than those evaluated in this study.
- Lunch will be standardized, giving every participant the same opportunity to engage in cooking behaviors and allowing for better awareness of errors and modifications.
- Inclusion of self-report that has more face validity for assessing kitchen safety specifically.
- Acquire more male participants in future work to determine the effect of gender, if any.

References

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