

Parkinson’s Disease Performance-Based Activities of Daily Living are Associated with Caregiver, not Patient Reports

Marina Z. Nakhla, M.A.^{1,2,3}; Kelsey Holiday, M.S.^{1,2}; Nicole Whiteley, B.S.¹; Angelie Cabrera Tuazon, B.S.¹; Zanjbeel Mah J. Vincent Filoteo, Ph.D.^{2,3,4}; Zvinka Z. Zlatar, Ph.D.³; & Dawn M. Schiehser, Ph.D.^{2,3,4}

¹San Diego State University/University of California, San Diego Joint Doctoral Program in Clinical Psychology
²Veteran Affairs San Diego Healthcare System, San Diego, CA
³Department of Psychiatry, University of California, San Diego, La Jolla, CA
⁴Department of Neurosciences, Movement Disorder Center, University of California, San Diego, La Jolla, CA



INTRODUCTION

- Parkinson’s disease (PD) is characterized by both motor and non-motor symptoms that impact instrumental activities of daily functioning (iADLs), such as medication adherence and financial management.
- Both non-demented PD patients and their caregivers report subjective decline in the iADLs of medication and financial skills before any indication of cognitive impairment.
- Similarly, impairments in objectively-measured iADLs of medication management and financial skills have been documented in PD persons without dementia.
- However, the relationship between subjective reports (i.e., patient or caregiver) and objective iADL performance in PD remains unclear; with only one study to date finding that patients’ self-reports overestimated objective iADLs (caregiver reports were not available).
- It is important to investigate the relationship between subjective self- versus caregiver-reports of iADLs and objective iADLs (i.e., medication adherence and financial management) to determine the validity of subjective reporting by self vs. caregiver and to identify PD patients who may benefit from comprehensive functional testing.
- The purpose of this study was to examine whether patient or caregiver reports of iADL performance significantly predicted

PARTICIPANTS

Table 1: <u>Descriptive & Demographic Information</u> (N = 142)			
	PD Patients	Caregivers	<i>p</i>
Age (years)	67.58 (± 8.45)	63.42 (± 11.63)	.001
Education (years)	16.61 (± 2.40)	15.96 (± 2.39)	.022
Gender	Males: 71.1% Females: 28.9%	Males: 24.8% Females: 75.2%	<.001
Disease Duration (years)	5.73 (± 5.14)	---	---
Levodopa Equivalent Dosage (mg/day)	737.21 (± 769.96)	---	---
Modified Hoehn & Yahr Stage (%) 0/1/1.5/2/2.5/3/4/5	1.4 / 21.6 / 1.4 / 53.2 / 9.4 / 10.8 / 2.2 / 0	---	---
Motor Unified PD Rating Scale Part 3	21.03 (± 12.34)	---	---
Mattis Dementia Rating Scale Total	138.58 (± 3.84)	---	---
Self Geriatric Depression Scale (GDS) Total Score	6.27 (± 5.06)	4.06 (± 4.31)	<.001

1) Levodopa Equivalent Dosages were calculated using Tomlinson et al. (2010) criteria. 2) One-way ANOVAs were utilized to determine significant demographic differences. 3) Patients with PD Dementia (MDS < 124) were excluded.

METHODS

- **General Subjective ADL Functioning**
 - ❑ **Self-Report Measure:** PD Cognitive-Functional Rating Scale (PD-CFRS)
 - ❖ 12 items that measure financial tasks, medication adherence, understanding material, organizing activities, etc. on a Likert Scale from 0-2; higher scores = more difficulty.
 - ❑ **Caregiver Measure:** Lawton Instrumental Activities of Daily Living (IADL) Scale
 - ❖ 8 items that measure financial tasks, medication adherence, food preparation, shopping, transportation skills, etc. on a categorical scale from 0-1; higher scores = better functioning.
- **Performance-Based Functional Ability**
 - ❑ **Medication Management Abilities Assessment (MMAA):** Higher scores reflect better medication management.
 - ❑ **University of California, San Diego Performance-Based Skills Assessment – Financial Skills Domain (UPSA-F):** Higher scores reflect better financial skills function.
- **Statistical Analyses**
 - ❑ 4 hierarchical regressions were conducted with objective measures as the criterion (i.e., MMAA or UPSA-F), demographics and significant clinical characteristics (i.e., age, disease duration, and GDS score) based on Pearson correlations entered in the first step, and subjective patient or caregiver measures (i.e., PD-CFRS Scale or

RESULTS

Table 2: Pearson correlations between Subjective and Objective iADLs.

		<u>MMAA</u>	<u>UPSA-F</u>
<u>Caregiver Lawton’s IADL Total</u>	Pearson Correlation	.23	.25
	p-value	.006	.003
<u>Self-Report PD CFRS Total</u>	Pearson Correlation	-.28	-.01
	p-value	.059	.960

- MMAA was significantly correlated with patient age, $r = -.19$, $p = .025$, and disease duration, $r = .18$, $p = .033$. UPSA-F was significantly correlated with patient age $r = -.20$, $p = .016$, and patient Geriatric Depression Scale total, $r = -.17$, $p = .045$.
- Lawton’s IADL was significantly associated with the PD-CFRS, $r = -.39$, $p = .008$.
- MMAA was not significantly associated with UPSA-F, $r = .16$, $p = .054$.
- Neither objective measure was significantly correlated with any other demographic/characteristic variables (refer to Table 1).

Table 3. Caregiver Lawton IADL Scale Significantly Predicts MMAA.

<u>Predictor</u>	<u>Standardized Beta</u>	<u>T-Statistic</u>	<u>P-Value</u>	<u>Overall F-Statistic</u>	<u>R²</u>
Patient Age	-.21	-2.45	.015	F (1, 132)= 6.02 $p < .001$.154
Disease Duration	.23	2.76	.007		
Patient GDS Total	-.07	-.83	.410		
Lawton IADL Total	.25	3.03	.003		

- Caregiver Lawton’s IADL Scale did not significantly predict UPSA-F
- The self-report PD-CFRS Scale did not significantly predict MMAA or the UPSA-F.

DISCUSSION

- Caregiver reports, but not patient reports, of poorer *general* ADL/iADL function are significantly related to objectively measured patient iADLs.
 - ❑ Since caregivers typically assist PD patients with daily functional tasks, they may present critical knowledge regarding the patient’s iADLs.
- Caregiver reports of patient iADLs significantly predicted objectively-measured medication adherence.
 - ❑ This can help identify PD patients at risk for medication nonadherence despite lack of self-reports of functional difficulties.
 - ❑ Healthcare providers should use caregiver reports of medication compliance rather than rely on patient reports.
- Neither the caregiver reports nor the self-reports significantly predicted financial skills.
 - ❑ Healthcare professionals should take performance-based measures to assess PD patients’ ability to carry out financial tasks.
 - ❑ It is also possible that the Lawton iADL and PD-CFRS scales are not sensitive enough to assess money management problems.
- Our findings provide valuable insights for clinicians to identify PD patients who need early assessment and intervention.
- Results highlight the importance of evaluating performance-based iADLs in relation to subjective iADLs.
- Future research should explore the relationship between subjective measures and other performance-based iADLs to assess accuracy of reporting.

ACKNOWLEDGEMENTS

This project was supported by VA Merit Awards to Dawn Schiehser, Ph.D. and J. Vincent Filoteo, Ph.D., by the Department of Veterans Affairs, VHA, Office of R&D, RR&D, and CSR&D. Additional thanks to UC San Diego’s Strategic Enhancement of Excellence through Diversity (SEED) Fellowship. We thank the Veterans Medical Research Foundation for printing this poster.

