other factors might play a role. Greater anticholinergic medication use has been linked to worse cognition in those with PD (Fox et al., 2011, Shah et al., 2013). However, past studies on this topic had small sample sizes, limited ranges of disease duration, and only used cognitive screeners. Thus, this study aimed to examine this question within a large, clinical sample, using a more comprehensive neuropsychological battery. We hypothesized that higher anticholinergic medication usage would relate to worse cognitive performance, particularly memory.
Participants and Methods: Participants included 491 nondemented individuals with PD (m=64.7, SD=9.04 years old; education m=15.01, SD=2.79; 71.9% male; 94.3% non-Hispanics white) who underwent a comprehensive neuropsychological assessment at the UF Fixel Institute's movement disorders program. Medications at the time of the neuropsychological evaluation were identified from chart review and scored based on anticholinergic properties using the Magellan Anticholinergic Risk Scale (Rudolph J.L., et al, 2008); each medication was scored from 0 (no load) to 3 (high load). The neuropsychological battery included measures across 5 cognitive domains: (1) executive function (Trails B, Stroop Interference, Letter Fluency), (2) verbal delayed memory (WMS-III Logical Memory and Hopkin's Verbal Learning Test-Revised delayed recalls), (3) language (Boston Naming Test-II, Animal Fluency), (4) visuospatial skills (Judgment of Line Orientation, Face Recognition Test), and (5) attention/working memory (WAIS-III Digit Span Forward and Backward). The published normative scores for each task were converted into z-scores and averaged into a domain composite. Due to non-normality of Magellan scores, Spearman correlations examined the relationship between each cognitive domain composite score and Magellan scores.
Results: As predicted, higher Magellan scores were significantly associated with worse memory (r=-0.11, p=0.016), with a small effect size. There were no significant relationships between Magellan scores and the remaining cognitive domains (EF, language, visuospatial, attention).
Conclusions: We found that greater anticholinergic burden was associated with worse performance on memory, but not other neuropsychological domains, in a large cohort of nondemented individuals with PD who underwent comprehensive assessment. This finding corresponds to previous literature in smaller PD cohorts. Though the effect size was low, this finding highlights the importance of monitoring anticholinergic burden in PD patients in order to minimize detrimental effects of medications on memory function. Future work should examine whether greater anticholinergic burden predicts future progression of memory decline.
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Categories: Movement and Movement Disorders
Keyword 1: Parkinson's disease
Keyword 2: mild cognitive impairment
Keyword 3: movement disorders
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6 Improved verbal fluency following unilateral right hemisphere subthalamic nucleus deep brain stimulation for Parkinson's disease: Is implant hemisphere a modifiable risk factor for cognitive decline?

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Objective: Non-motor symptoms, such as mild cognitive impairment and dementia, are an overwhelming cause of disability in Parkinson's disease (PD). While subthalamic nucleus deep brain stimulation (STN DBS) is safe and effective for motor symptoms, declines in verbal fluency after bilateral DBS surgery have been widely replicated. However, little is known about cognitive outcomes following unilateral surgeries.
Participants and Methods: We enrolled 31 PD patients who underwent unilateral STN-DBS in a randomized, cross-over, double-blind study (SUNDIAL Trial). Targets were chosen based on treatment of the most symptomatic side (n = 17 left hemisphere and 14 right hemisphere). All

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participants completed a neuropsychological battery (FAS/CFL, AVLT, DKEFS Color-Word Test) at baseline, then 2, 4, and 6 months post-surgery. Outcomes include raw scores for verbal fluency, immediate and delayed recall, and DKEFS Color-Word Inhibition trial (Trial 3) completion time. At 2, 4, and 6 months, the neurostimulation type (directional versus ring mode) was randomized for each participant. We compared baseline scores for all cognitive outcome measures using Welch's two-sample t-tests and used linear mixed effects models to examine longitudinal effects of hemisphere and stimulation on cognition. This test battery was converted to a teleneuropsychology administration because of COVID-19 mid-study, and this was included as a covariate in all statistical models, along with years of education, baseline cognitive scores, and levodopa equivalent medication dose at each time point.
Results: At baseline, patients who underwent left hemisphere implants scored lower on verbal fluency than right implants ($t(20.66) = -2.49$, $p = 0.02$). There were not significant differences between hemispheres in immediate recall ($p = 0.57$), delayed recall ($p = 0.22$), or response inhibition ($p = 0.51$). Post-operatively, left STN DBS patients experienced significant declines in verbal fluency over the study period ($p = 0.02$), while patients with right-sided stimulation demonstrated improvements ($p < .001$). There was no main effect of stimulation parameters (directional versus ring) on verbal fluency, memory, or inhibition, but there was a three-way interaction between time, stimulation parameters, and hemisphere on inhibition, such that left STN DBS patients receiving ring stimulation completed the inhibition trial faster ($p = 0.035$). After surgery, right STN DBS patients displayed faster inhibition times than patients with left implants ($p = 0.015$).
Conclusions: Declines in verbal fluency after bilateral stimulation are the most commonly reported cognitive sequalae of DBS for movement disorders. Here we found group level declines in verbal fluency after unilateral left STN implants, but not right STN DBS up to 6 months after surgery. Patients with right hemisphere implants displayed improvements in verbal fluency. Compared to bilateral DBS, unilateral DBS surgery, particularly in the right hemisphere, is likely a modifiable risk factor for verbal fluency declines in patients with Parkinson's disease.

Categories: Neurostimulation/Neuromodulation

Keyword 1: Parkinson's disease
Keyword 2: neurostimulation
Keyword 3: movement disorders
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Poster Session 02: Acute & Acquired Brain Injury

9:30 - 10:40am
Thursday, 2nd February, 2023
Town & Country Foyer

1 Quantity or quality? Comparing objective and subjective participation measures to predict quality of life in aging msTBI.

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Objective: Community reintegration and participation have been shown to be significantly correlated to improved Quality of Life (QoL) following moderate to severe traumatic brain injury (msTBI), yet these models often come with significant levels of unaccounted variability (Pierce and Hanks, 2006). Measures for community participation frequently employ objective measures of participation, such as number of outings in a week or current employment status (Migliorini et al., 2016), which may not adequately account for lifestyle differences, especially in aging populations. Less often integrated are subjective measures of an individual's own belongingness and autonomy within the community (Heineman et al., 2011), also referred to as their participation enfranchisement (PE). The present study examines three questions pertinent to the potential clinical value of PE. First, do measures of objective participation significantly predict an individual's PE ratings? Second, are both types of measures equally successful predictors of QoL for aging individuals with chronic-stage

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