

childhood experiences (ACEs), are one aspect of social determinants of health. ACEs have been linked to a greater risk of future memory impairment, such as dementia. Moreover, higher instances of ACEs have been found amongst racial minorities. Considering the current literature, the purpose of this exploratory research is to better understand how social determinants, more specifically, ACEs, may play a role in the development of cognitive impairment.

Participants and Methods: This cross-sectional study included data from an urban, public Midwestern academic medical center. There was a total of 64 adult clinical patients that were referred for a neuropsychological evaluation. All patients were administered a standardized neurocognitive battery that included the Montreal Cognitive Assessment (MoCA) as well as a 10-item ACE questionnaire, which measures levels of adverse childhood experiences. The sample was 73% Black and 27% White. The average age was 66 (SD=8.6) and average education was 12.6 years (SD=3.4). A two-way ANOVA was conducted to evaluate the interaction of racial identity (White; Black) and ACE score on MoCA total score. An ACE score ≥ 4 was categorized as “high”; ACE < 4 was categorized as “low.”

Results: There was not a significant interaction of race and ACE group on MoCA score ($p=.929$) nor a significant main effect of ACE score ($p=.541$). Interestingly, there was a significant main effect of Race on MoCA ($p=.029$). White patients had an average MoCA score of 21.82 ($sd=4.77$). Black patients had an average MoCA score of 17.54 ($sd=5.91$).

Conclusions: Overall, Black patients demonstrated statistically lower scores on the MoCA than White patients. There was no significant difference on MoCA score between races when also accounting for ACE scores. Given this study’s findings, one’s level of adverse childhood experiences does not appear to impact one’s cognitive ability later in life. There is a significant difference in cognitive ability between races, specifically Black and White people, which suggests there may be social determinants other than childhood experiences to be explored that influence cognitive impairment.

Categories: Memory Functions/Amnesia

Keyword 1: cognitive functioning

Keyword 2: childhood maltreatment

Correspondence: Veronica Koralewski, University of Illinois at Chicago, Point Loma Nazarene University, vkoralewski701@pointloma.edu

16 Relative Contributions of Motor and Non-Motor Symptoms to Caregiver Burden in Parkinson’s Disease Patients Being Evaluated for Deep Brain Stimulation

Allyson Goldstein¹, Kimberly Chapman^{2,1}, Umer Akbar^{2,1}, Jennifer Davis^{2,1}

¹Rhode Island Hospital, Providence, RI, USA.

²Alpert Medical School of Brown University, Providence, RI, USA

Objective: Parkinson’s disease (PD) is a neurodegenerative disorder affecting over 10 million people worldwide. PD is characterized by both motor (e.g., tremor, rigidity, and bradykinesia) and non-motor (including cognitive impairment and neuropsychiatric symptoms such as apathy, disinhibition, executive dysfunction) symptoms. Caregiver burden is prevalent in those providing care for patients with PD and can result in negative health complications. Past work shows associations between motor symptoms, cognitive impairment, neuropsychiatric symptoms, and caregiver burden in PD. However, their relative contributions are poorly understood. This study examined these relationships, hypothesizing that while motor symptoms, cognitive impairment, and neuropsychiatric symptoms would all affect caregiver burden, neuropsychiatric symptoms would predict burden above and beyond the contribution of the other factors

Participants and Methods: Participants were 42 people living with PD who were assessed at a hospital-based tertiary movement disorders specialty clinic for deep brain stimulation (DBS) candidacy evaluation with their caregiver. Motor exam was assessed by a PD specialist using the Unified Parkinson’s Disease Rating Scale (UPDRS). The Mini Mental State Examination (MMSE) assessed global cognition. Frontal Systems Behavior Scale (FrSBe) Family Form captured caregiver ratings of neuropsychiatric symptoms under 3 subscales: apathy, disinhibition, and executive dysfunction. The Multidimensional Caregiver Strain Index (MCSI) captured caregiver burden. Linear regression

analyses examined relationships between caregiver burden (MCSI) and motor symptoms (UPDRS), cognitive impairment (MMSE), and neuropsychiatric symptoms (FrSBe).

Results: Using linear regression analyses, cognitive impairment ($R^2=0.08$, $F(1,41)=4.42$, $p=0.04$) and neuropsychiatric symptoms ($R^2=0.35$, $F(1, 41)=21.0$, $p<0.01$) predicted caregiver burden but motor symptoms did not ($R^2=0.03$, $F(1,41)=1.30$, $p=0.26$). Hierarchical linear regression revealed that neuropsychiatric symptoms predicted caregiver burden above and beyond the contribution of cognitive impairment ($\Delta R^2=0.28$, $\Delta F(1)=12.7$, $p=0.001$), accounting for an additional 28% of the variance in caregiver burden. Follow-up linear regression to examine the relationships between caregiver burden and the FrSBe subscales indicated that apathy ($p<0.001$), versus disinhibition ($p=0.16$) and dysexecutive behaviors ($p=0.80$), was the driver of the significant relationship.

Conclusions: Consistent with our hypothesis, results revealed that cognitive impairment and neuropsychiatric symptoms (specifically apathy) were independent predictors of caregiver burden, with neuropsychiatric symptoms predicting caregiver burden above and beyond the contribution of cognitive impairment. Somewhat surprisingly, motor symptoms were not a predictor of caregiver burden contrary to some previous research, though findings are mixed. Results highlight the importance of assessing for neuropsychiatric symptoms in PD, which may be overlooked by care providers relative to motor or cognitive symptoms, but which appear stressful to caregivers. Future directions include reexamining results in a larger more heterogeneous sample including people living with PD at different disease stages (i.e., everyone in the present sample had severe enough symptoms to be considering DBS). Cognitive measures of executive functioning (which are more specific to PD than measures of global cognition) should also be included in future works. Development of supportive caregiver interventions specifically targeting apathy in PD may be useful. Longitudinal designs would be helpful to reexamine relationships following DBS surgery, as there are some reports of increased neuropsychiatric symptoms following the procedure.

Categories: Movement and Movement Disorders

Keyword 1: Parkinson's disease

Keyword 2: caregiver burden

Correspondence: Allyson Goldstein, Rhode Island Hospital, agoldstein1@lifespan.org

17 Grit Predicts Lower Cognitive Fatigue in Persons with Parkinson's Disease Independent of Cognitive Status

Deyran Paredes¹, Tina Dang¹, Marina Z Nakhla^{1,2}, Raeanne C Moore^{1,3}, Stephanie Lessig^{1,4}, Irene Litvan⁴, Ece Bayram^{1,4}, Vincent Filoteo^{1,3,4}, Dawn M Schiehser^{1,3}

¹Research Service, VA San Diego Healthcare System, La Jolla, CA, USA. ²SDSU/UC San Diego Joint Doctoral Program in Clinical Psychology, San Diego, CA, USA. ³Department of Psychiatry, University of California San Diego, La Jolla, CA, USA. ⁴Department of Neurosciences, Parkinson and Other Movement Disorder Center, La Jolla, CA, USA

Objective: Fatigue, which can be classified into physical and cognitive subtypes (Schiehser et al., 2012), is a common non-motor symptom in persons with Parkinson's disease (PD) that has no clear treatment. Cognitive changes, also common in PD (Litvan et al., 2012), may impact how patients perceive fatigue (Kukla et al., 2021). Grit is a personality trait defined as perseverance and passion towards a long-term goal, and is associated with multiple positive outcomes such as lower fatigue levels in healthy individuals (Martínez-Moreno et al., 2021). However, scarce research has examined the relationship between grit and fatigue in persons with PD. Therefore, we aimed to investigate the relationship between fatigue (cognitive and physical) and grit, as well as the impact of cognitive status (i.e., cognitive normal vs. mild cognitive impairment [MCI]) on this relationship in non-demented individuals with PD.

Participants and Methods: Participants were 70 non-demented individuals with PD who were diagnosed as either cognitively normal ($n=20$) or MCI ($n=50$) based on Level II of the Movement Disorder Society PD-MCI criteria. Participants completed the Modified Fatigue Impact Scale (MFIS), which consists of two subscales (cognitive and physical fatigue) that are combined for a total overall fatigue score. Participants also completed the Grit Scale, which consists of items such as ambition, perseverance, and consistency. ANOVAs were