

## Background

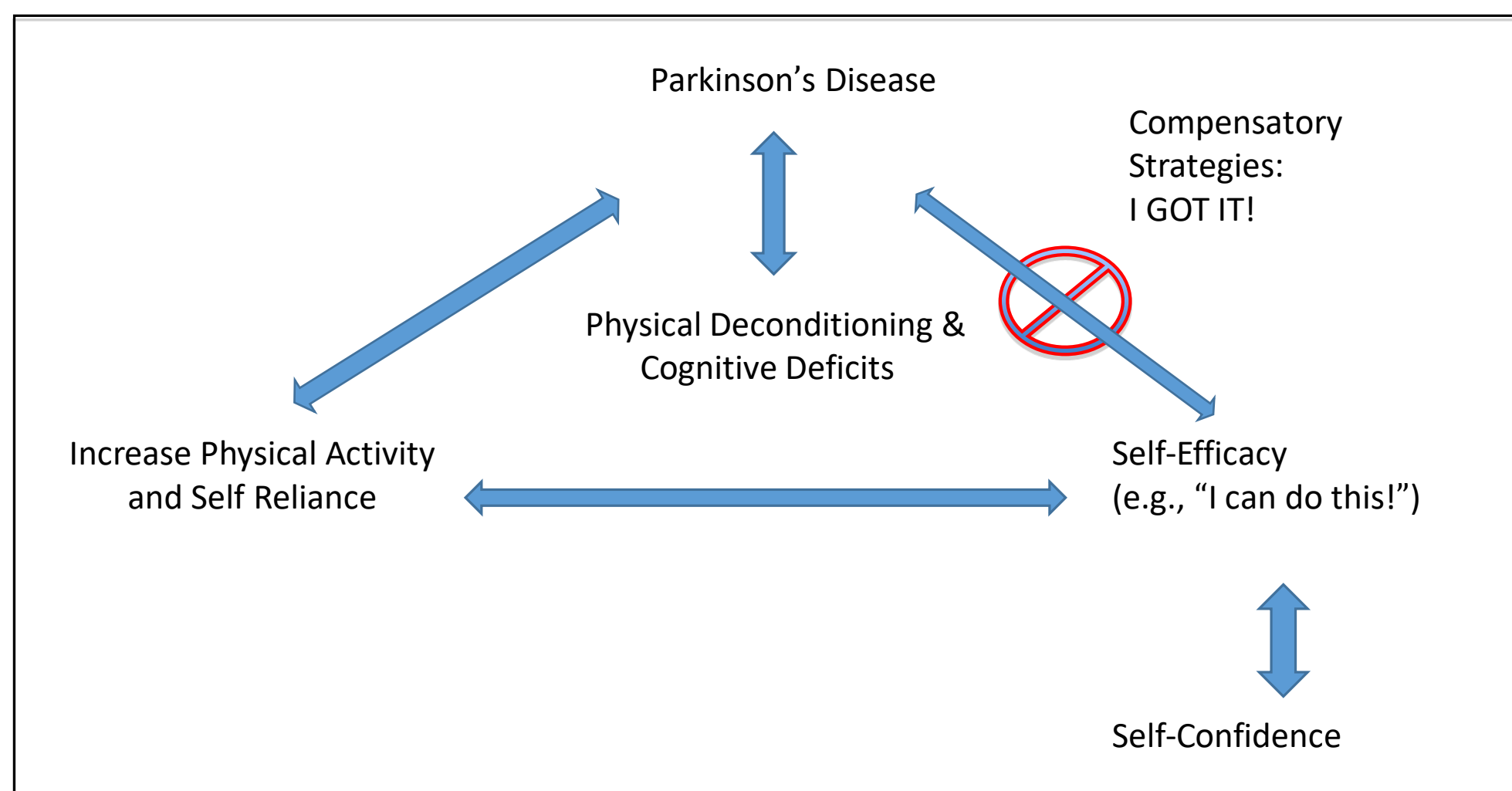
Cognitive dysfunction is a prevalent non-motor feature of Parkinson's disease (PD) that is associated with neural changes in the frontostriatal circuits<sup>1,2</sup>. Specifically, difficulties in executive skills such as working memory, inhibition, and set-shifting are early cognitive changes associated with PD. Unfortunately, there are currently no standardized guidelines for cognitive rehabilitation treatment in PD.

The Parkinson's Disease-Cognitive Rehabilitation for Executive functioning (PD-CoRE) program<sup>3</sup> is a novel cognitive rehabilitation program that utilizes compensatory strategies to address executive dysfunction (i.e., inhibition, working memory, and task shifting) in PD. A pilot study was completed in 2016 investigating neuropsychological outcomes and patient satisfaction of the PD-CoRE program. Findings revealed a modest improvement in set-shifting and no changes in psychological functioning, which only took into account depression and anxiety symptoms.

## Objective

This study addressed the previous study's limitations and examined self-reported changes in self-efficacy, life satisfaction, mood, and functional abilities in patients with mild idiopathic Parkinson's disease following completion of the PD-CoRE program. It also included informant-reported perception of functional abilities and caregiver burden.

Breaking the Cycle of Parkinson's Disease



## Method

### Participants:

- Initial N=8
  - 3 excluded; 2 attrition and 1 incomplete questionnaires
  - Final N=5, 50% male
- Mild PD who reported executive functioning difficulties
- Mean age = 69.8 (range: 57-77)
- Mean education = 15 years (range: 12-16)
- Mean Montreal Cognitive Assessment = 24.4 (range: 23-26)

### Method:

- PD-CoRE program
  - Weekly 1.5 hour group sessions over 6 weeks
  - Psychoeducation about PD and executive functioning
  - Introduction to the "I GOT IT" model
    - I - Inhibit unwanted responses
    - G - Goal-setting
    - O - Organize steps to accomplish the goal
    - T - Test the steps
    - I - Identify barriers or difficulties
    - T - Tailor your solution
  - Interactive activities in-session
  - Weekly homework assignments
- Pre- and post-treatment assessment

## Results

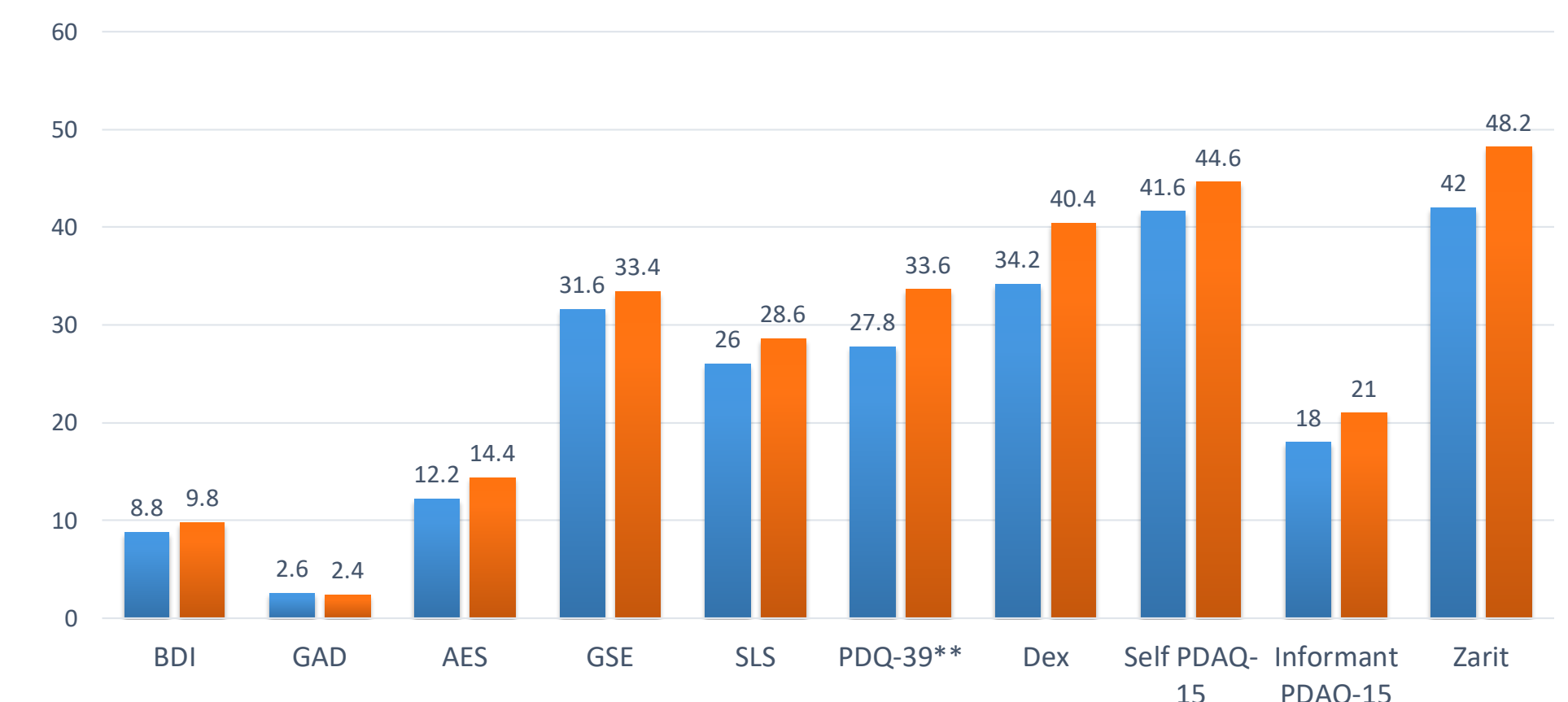
### Statistical Analyses:

- Paired samples *t*-tests analyzed pre-post change scores, alpha <0.05.

### Self-Report Measures:

- There was a statistically significant decline on the PDQ-39 (p=0.04).
- Relative improvements in mean scores were seen in perceived functional abilities, self-efficacy and life satisfaction.
- A relative improvement in mean score was seen in informants' perception of functional abilities.

Psychological and Functional Measure Scores



## Conclusion

- Increased education and self-awareness regarding executive functioning may have increased sensitivity to cognitive difficulties.
- Reported external stressors unrelated to PD-CoRE may have impacted mood in this small sample of PD patients.
- Future research includes 3-month assessment to re-examine these areas in a longer term follow-up.
- Future research will evaluate additional PD-CoRE groups to increase sample size and generalizability of the program.

## References

<sup>1</sup>Lawson, R. A., Yarnall, A. J., Duncan, G. W., Khoo, T. K., Breen, D. P., Barker, R. A., ... & Burn, D. J. (2014). Severity of mild cognitive impairment in early Parkinson's disease contributes to poorer quality of life. *Parkinsonism & Related Disorders*, 20(10), 1071-1075.

<sup>2</sup>Lewis, S. J., Dove, A., Robbins, T. W., Barker, R. A., & Owen, A. M. (2003). Cognitive impairments in early Parkinson's disease are accompanied by reductions in activity in frontostriatal neural circuitry. *The Journal of Neuroscience*, 23(15), 6351-6356.

<sup>3</sup>Kim, S. H., Renn, B., Crist, K., Jimenez-Shahed, J., Sander, A., DiNapoli, E., & York, M. (2016, November). Mood and quality of life self-report preliminary outcomes for the Parkinson's Disease-Cognitive Rehabilitation for Executive functioning (PD-CoRE) Program. Poster presented at the 93rd American Congress of Rehabilitation Medicine, Chicago, IL.