

# SYMPTOM DIMENSIONS OF DEPRESSION AND APATHY AND THEIR RELATIONSHIP WITH COGNITION IN PARKINSON'S DISEASE

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## INTRODUCTION

- Parkinson's disease (PD) is neurodegenerative disorder characterized by both motor and non-motor symptoms.
- Both depression and apathy, alone and in combination, have been shown to negatively affect cognition in patients with PD.
- However, the influence of specific symptom dimensions of depression and apathy on cognition is not well understood.
- The current study investigated the relationship between symptom dimensions of depression and apathy, based on factors identified by factor analysis in Kirsch-Darrow et al. (2011), and memory and executive function in PD.

## PARTICIPANTS

- **Sample:** 138 non-demented individuals with idiopathic PD
- **Age:** M = 64.51 ± 7.43 years
- **Sex:** 70% male
- **Education:** M = 14.76 ± 2.86 years
- **Mini-Mental Status Examination (MMSE) Total:** M = 28.37 ± 1.58
- **Beck Depression Inventory – 2<sup>nd</sup> Edition (BDI-II) Total:** M = 10.30 ± 6.63
- **Apathy Scale (AS) Total:** M = 11.45 ± 6.07

## METHODS

- Individuals underwent comprehensive neuropsychological testing and completed the BDI-II and AS.
- Separate hierarchical regression models examined the relationship between symptom dimensions of depression and apathy (pure depression, pure apathy, anhedonia (loss of interest/pleasure), and somatic symptoms) and three cognitive domain composites: immediate verbal memory, delayed verbal memory, and executive function.
- Exploratory post-hoc analyses investigating individual cognitive measures were conducted for any significant composite results.

Item content of the BDI-II and AS subscales used in the current study

### Pure depression

**BDI-II:** Sadness, Pessimism, Past failure, Guilty feelings, Punishment feelings, Self-dislike, Self-criticalness, Suicidal thoughts/wishes, Crying, Agitation, Worthlessness, Irritability

### Pure apathy

**AS:** Put effort into things, Looking for something to do, Plans/goals for future, Motivation, Someone tells you what to do, Indifferent to things, Unconcerned about many things, Need a push to get started, Neither happy nor sad, Consider self apathetic

### Anhedonia

**BDI-II:** Loss of pleasure, Loss of interest, Indecisiveness

**AS:** Interested in learning new things, Push to get started

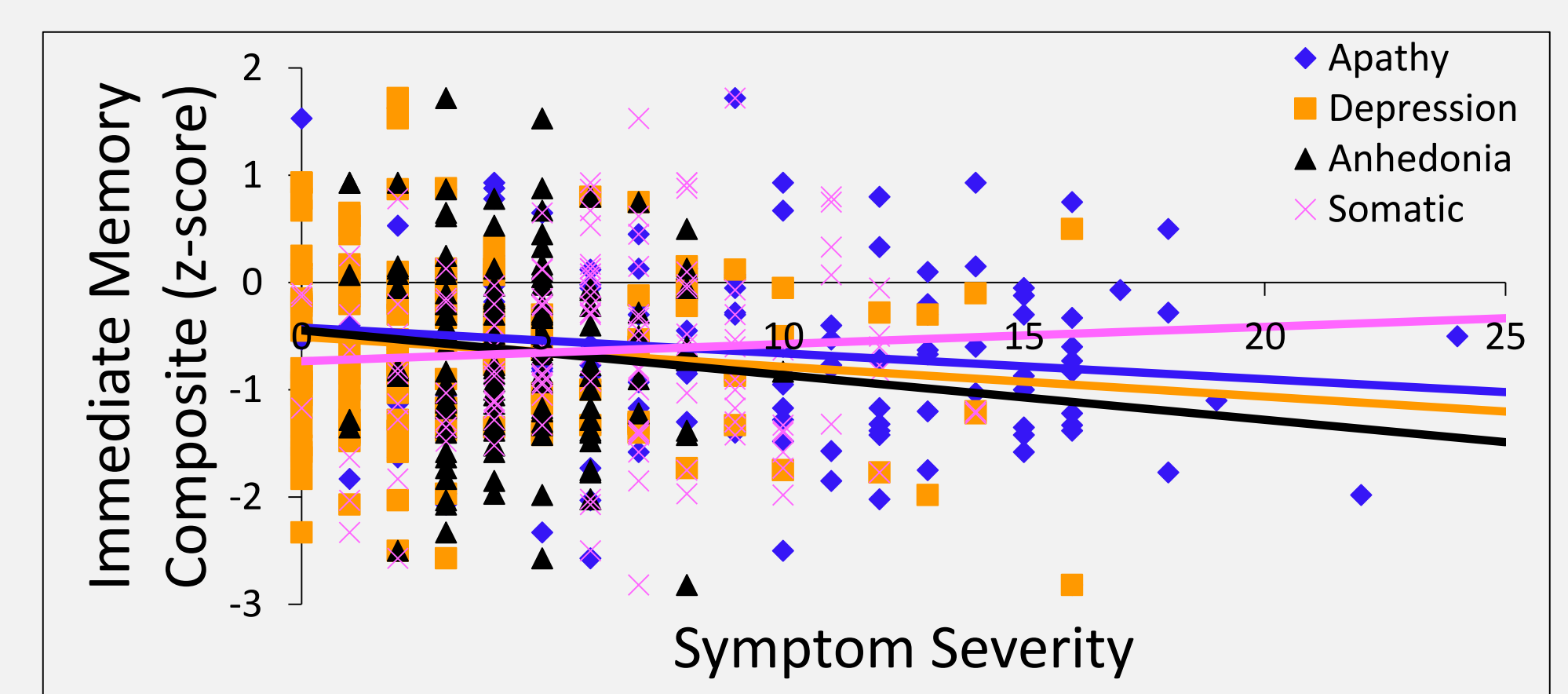
### Somatic

**BDI-II:** Loss of energy, Changes in sleep, Changes in appetite, Concentration difficulty, Tiredness/fatigue, Loss of interest in sex

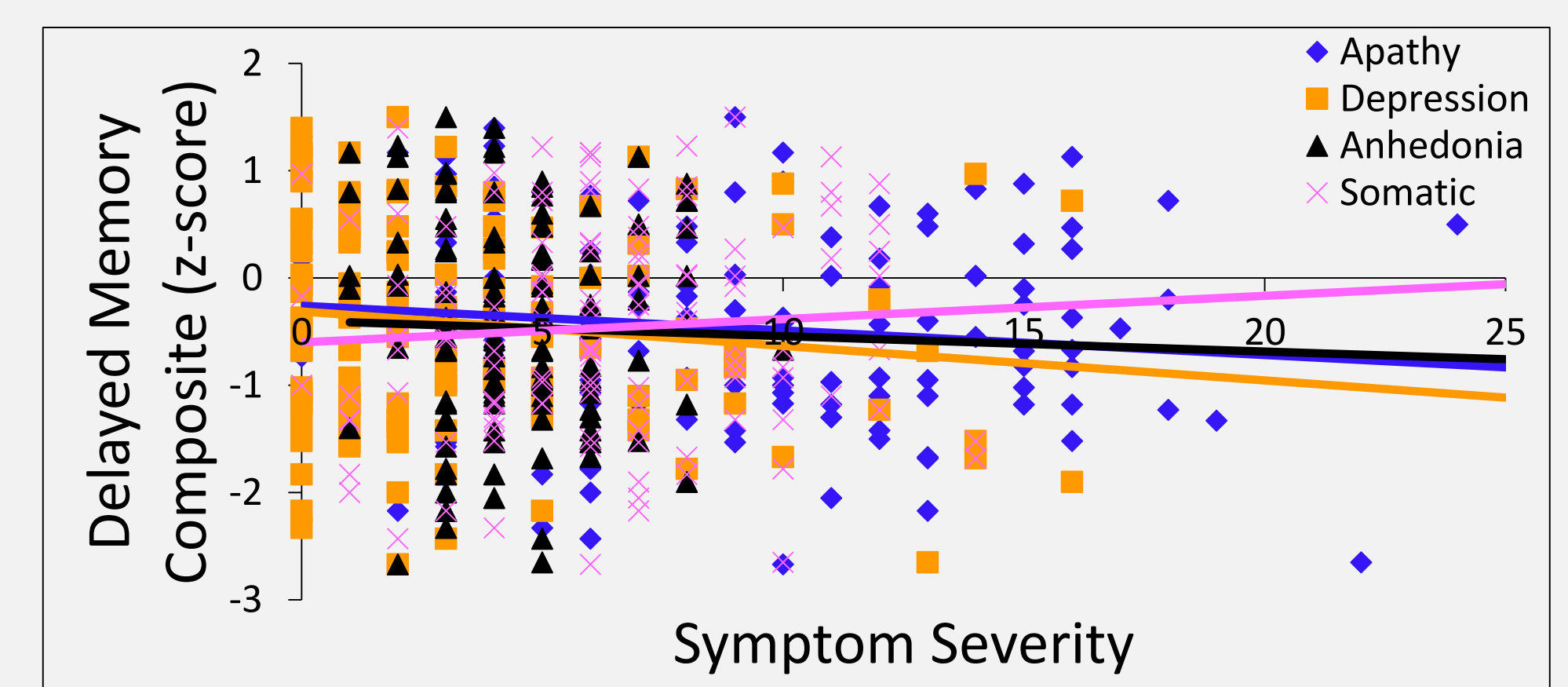
**AS:** Energy for daily activities

## RESULTS

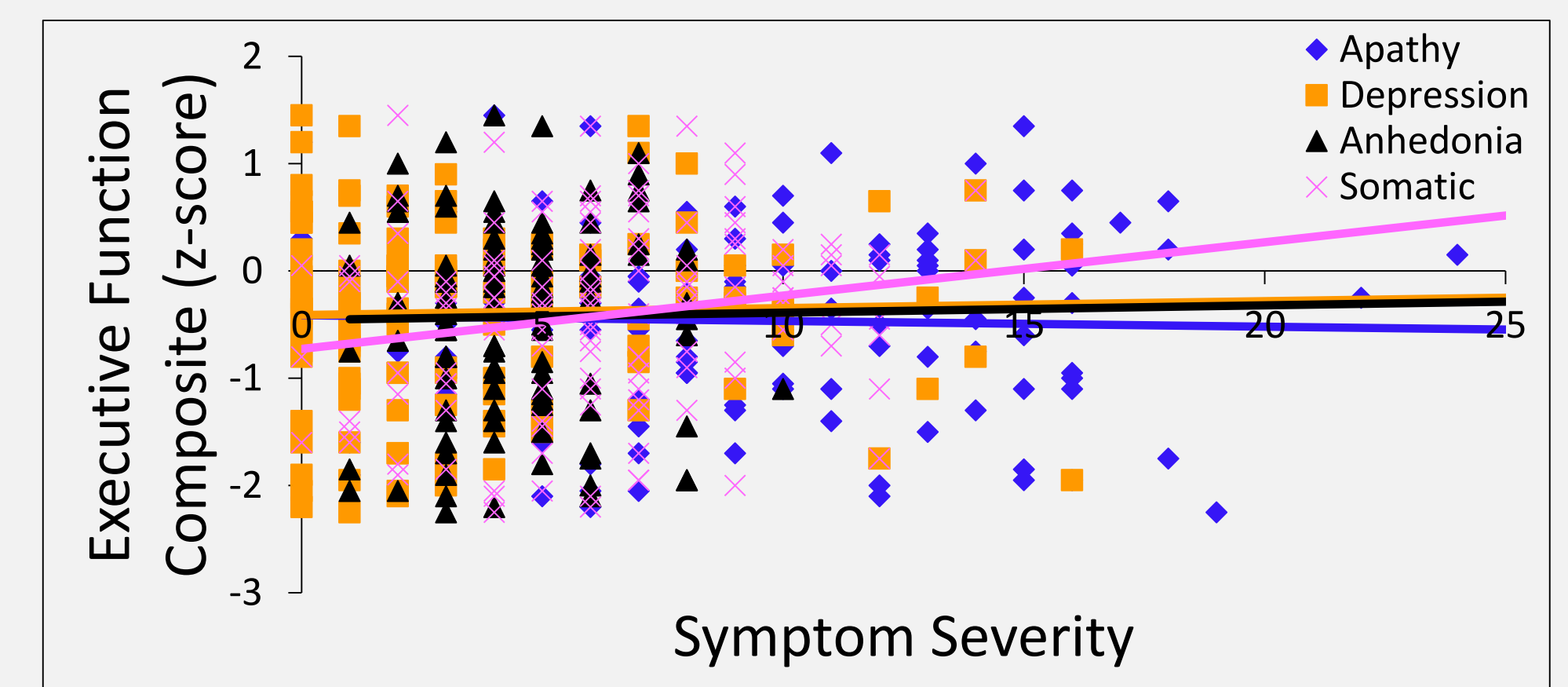
- After adjusting for general cognitive status, disease variables, and the influence of the other symptom dimensions, pure depression predicted delayed verbal memory performance ( $p = 0.028$ ), such that higher pure depressive symptoms were associated with worse delayed verbal memory performance.
- No symptom dimension was associated with the immediate verbal memory or executive function composites.



\*All non-significant



\*Depression:  $p = 0.028$



\*All non-significant

- Follow-up analyses on the delayed verbal memory composite indicated that pure depression was significantly related to worse HVLT-R delayed recall performance ( $p = 0.020$ ), but not Logical Memory delayed recall.

## DISCUSSION

- Findings from the current study suggest that pure depression symptoms, rather than other symptom dimensions of depression or apathy, influence specific domains of cognitive functioning in patients with PD.
- Further research is needed to better understand possible mechanisms through which specific symptom dimensions of depression and apathy are associated with cognition in PD.

## REFERENCES

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