

# Assessing Treatment Needs and Outcomes in Patients With Parkinson’s Disease: Results From a Real-World Study

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## BACKGROUND

- Parkinson’s disease (PD) is a progressively degenerative neurological disorder that affects movement and cognitive function<sup>1</sup>
- Despite the availability of a number of treatments, there is still considerable unmet need for effective treatments for patients with PD<sup>1</sup>
- Current research acknowledges the unmet needs experienced by patients with PD,<sup>1</sup> but overlooks the fact that patient needs and the resulting burden vary depending on the level of PD severity
- PD severity can be classified using clinical measures such as the Hoehn & Yahr (H&Y) scale. This scale scores patients based on their symptom severity and level of disability<sup>2</sup>

## OBJECTIVE

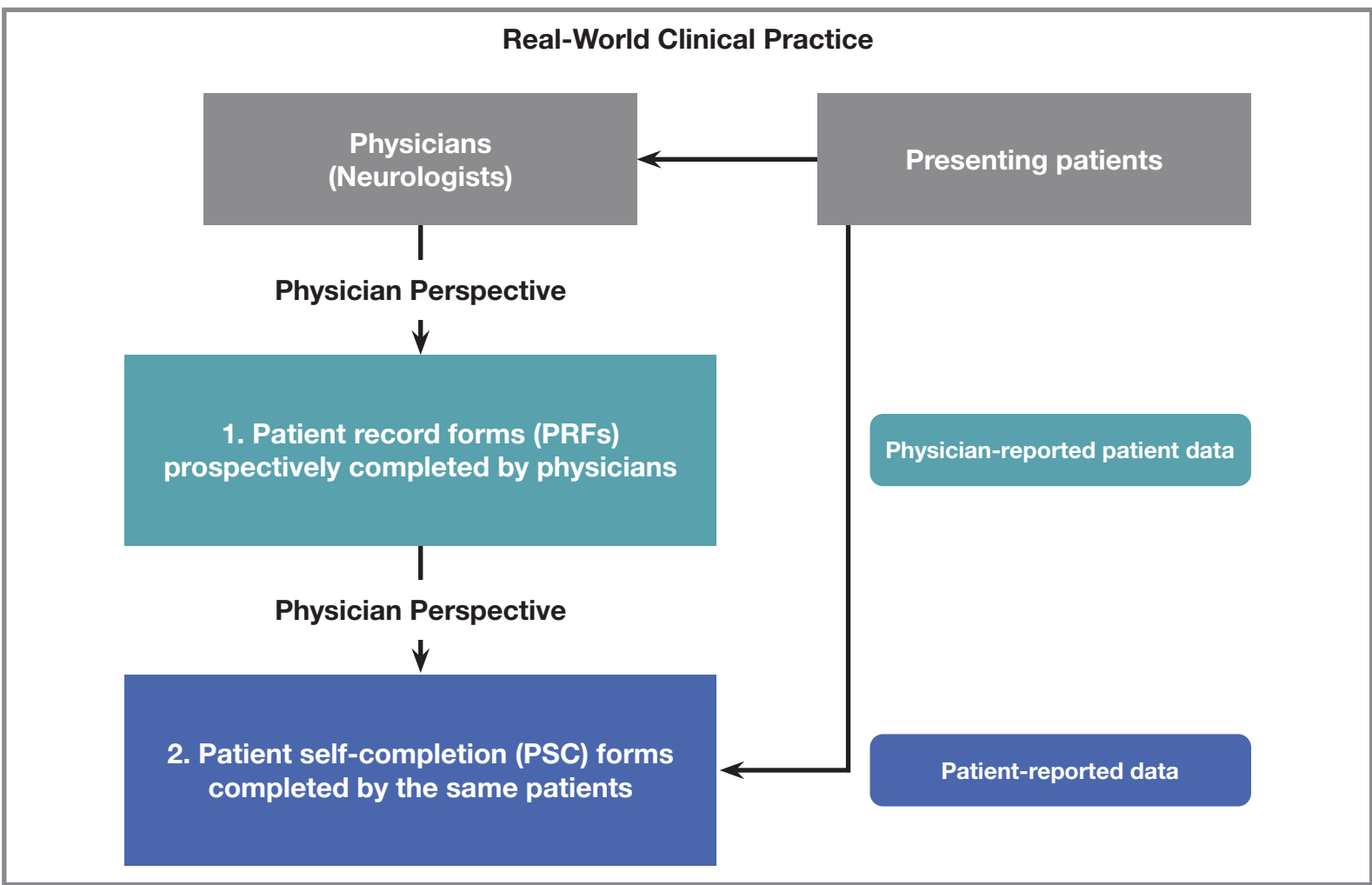
- To quantify unmet treatment needs, treatment satisfaction, and disease burden in patients with PD in different H&Y score groups

## METHODS

### Study Design

- Analysis was conducted using data from the Adelphi PD Disease Specific Programme™ (DSP), a point-in-time survey of neurologists and their PD patients in the US between 2021 and 2022. Full DSP methodology has been published previously<sup>3</sup>
- Data collected included physician-reported patient demographics, clinical data, unmet needs, and patient-reported outcomes, including treatment satisfaction (1-7, higher=better), EuroQol 5-Dimension (EQ-5D-5L, 0-1, higher=better), EuroQol Visual Analogue Scale (EQ-VAS, 0-100, higher=better), Parkinson’s disease Questionnaire (PDQ-39, 0-100, higher=worse), and Work Productivity and Activity Impairment questionnaire (WPAI, % impairment) scores

Figure 1. Adelphi DSP methodology



### Sample

- In total, 95 neurologists provided data for 1251 patients. Patients were grouped and analysed based on their current H&Y stage:
  - Early PD, H&Y 1-2, n=593
  - Intermediate PD, H&Y 2.5-3, n=505
  - Severe PD, H&Y 4-5, n=153

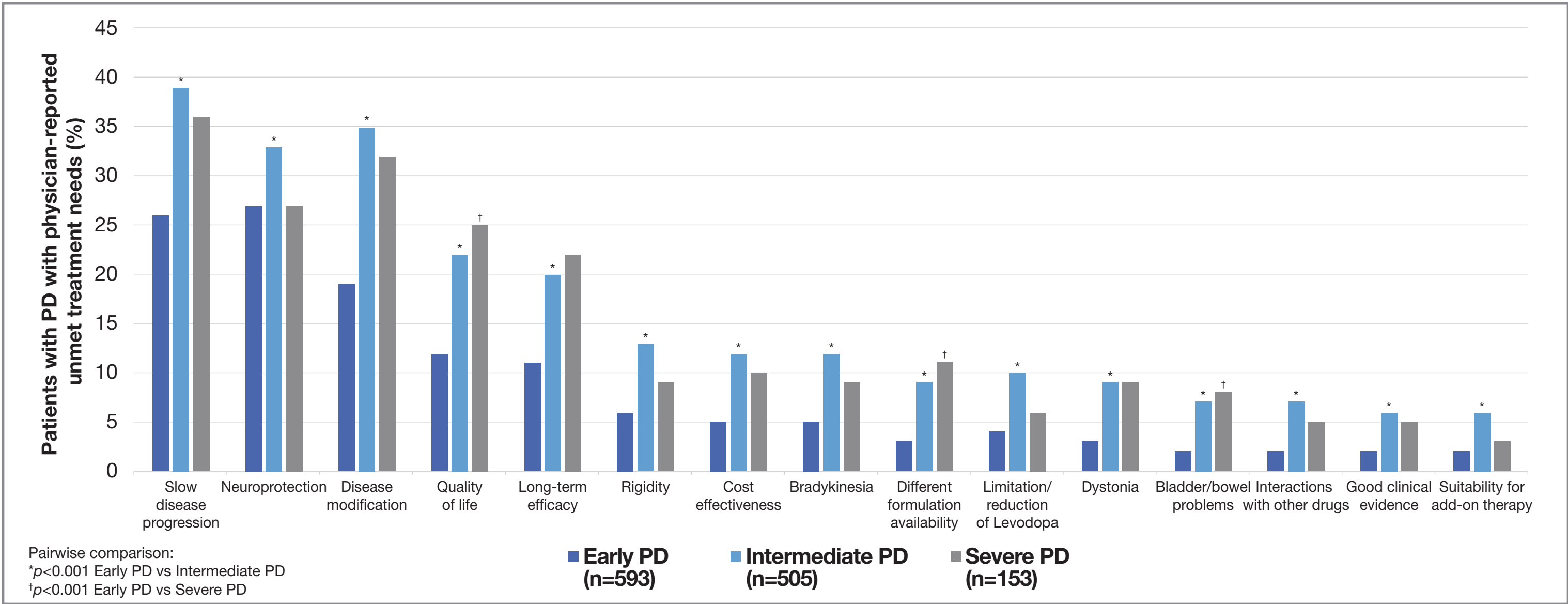
### Statistical Methods

- Bivariate analysis was conducted, comparing unmet treatment needs, treatment satisfaction, and patient quality of life (QoL) across all H&Y patient subgroups
- Pairwise analysis was also conducted to compare unmet treatment needs, treatment satisfaction, and patient-reported QoL. All patient subgroups were analysed against each other

## RESULTS

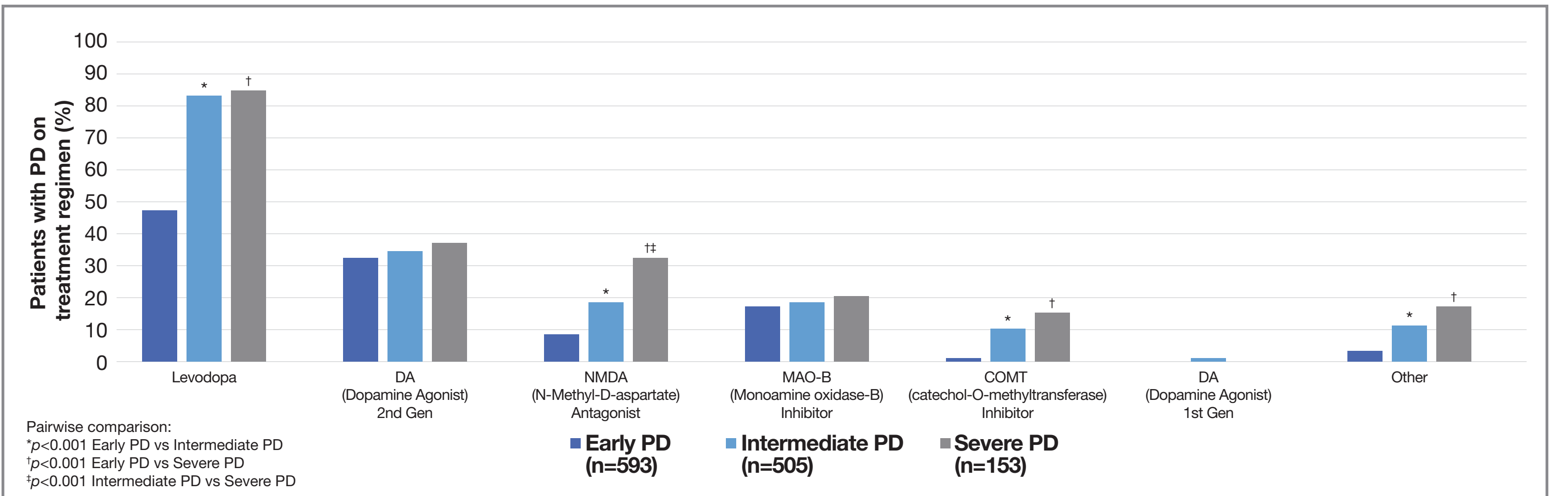
- Pairwise comparisons between Early PD and Intermediate PD patients revealed that Intermediate PD patients had significantly greater physician-reported unmet treatment needs in relation to: slowing disease progression, disease modification, neuroprotection, QoL, long-term efficacy, limitation/reduction of levodopa, dystonia, bradykinesia, rigidity, bladder/bowel problems, interactions with other drugs, different formulation availability, cost effectiveness, suitability for add-on therapy, and good clinical evidence (all  $p<0.001$ ) (Figure 2)
- Similarly, Intermediate PD patients often reported the highest unmet need out of all severity groups, although only reducing tremor was significant when compared to Severe PD patients ( $p<0.05$ )

Figure 2. Physician-reported unmet treatment needs by H&Y stage



- Levodopa was the most commonly reported treatment for all groups (Early PD, 47%; Intermediate PD, 83%; Severe PD, 85%) (Figure 3)

Figure 3. Current treatment regimen by H&Y stage



- The mean number of current drug treatment regimens in patients increased with PD severity (Mean: Early PD, 1.1; Intermediate PD, 1.9; Severe PD, 2.4;  $p<0.0001$ ) (Table 1)
- The mean number of previous drug treatment regimens in patients also increased with increasing PD severity (Mean: Early PD, 1.2; Intermediate PD, 1.8; Severe PD, 2.1;  $p<0.0001$ ) (Table 1)

Table 1. Current and previous drug treatment regimens by H&Y stage

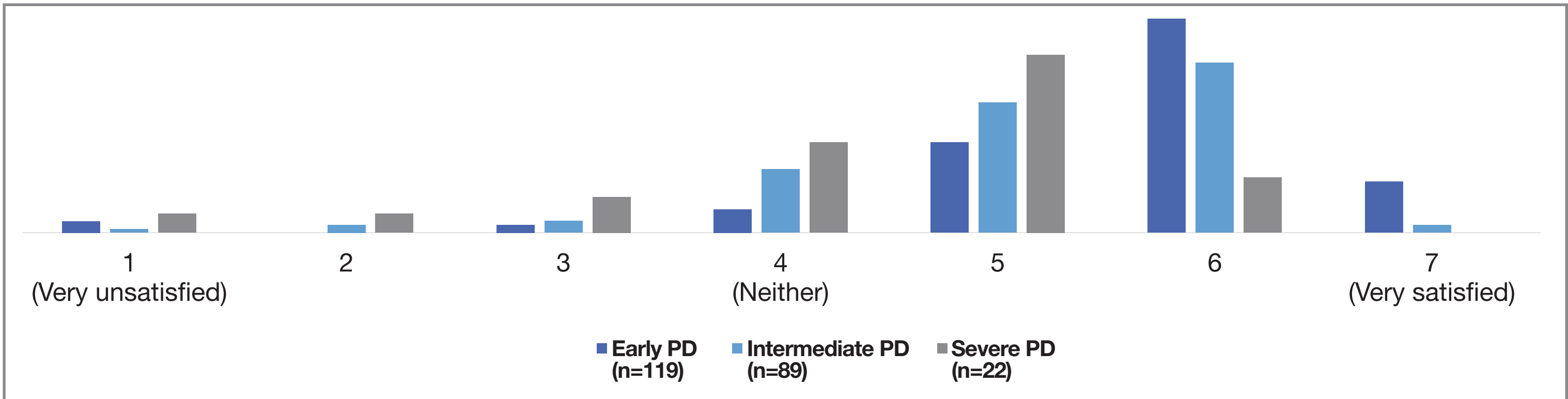
|   | Early PD (n=593) | Intermediate PD (n=505) | Severe PD (n=153) |
|---|------------------|-------------------------|-------------------|
| Number of drugs in current treatment regimen  |                  |                         |                   |
| Mean (SD)                                     | 1.1 (0.8)        | 1.9 (1.2)               | 2.4 (1.4)         |
| Median (min, max)                             | 1 (0, 5)         | 2 (0, 6)                | 2 (0, 6)          |
| Number of drugs in previous treatment regimen |                  |                         |                   |
| Mean (SD)                                     | 1.2 (0.8)        | 1.8 (0.9)               | 2.1 (1.0)         |
| Median (min, max)                             | 1 (1, 4)         | 2 (1, 6)                | 2 (1, 6)          |

- Patient-reported treatment satisfaction decreased with increasing PD severity (Mean: Early PD, 5.6 [n=119]; Intermediate PD, 5.1 [n=89]; Severe PD, 4.4 [n=22];  $p<0.001$ ) (Table 2; Figure 4)

Table 2. Patient-reported treatment satisfaction

|                   | Early PD (n=119) | Intermediate PD (n=89) | Severe PD (n=22) |
|-------------------|------------------|------------------------|------------------|
| Mean (SD)         | 5.6 (1.2)        | 5.1 (1.1)              | 4.4 (1.3)        |
| Median (min, max) | 6 (1, 7)         | 5 (1, 7)               | 5 (1, 6)         |

Figure 4. Distribution of patient-reported treatment satisfaction



- Pairwise comparisons for EQ-5D-5L and EQ-VAS scores revealed that Intermediate PD patients had significantly lower QoL when compared to Early PD patients ( $p<0.001$ ) (Figures 5 & 6)

Figure 5. EQ-5D-5L Health Index by H&Y stage

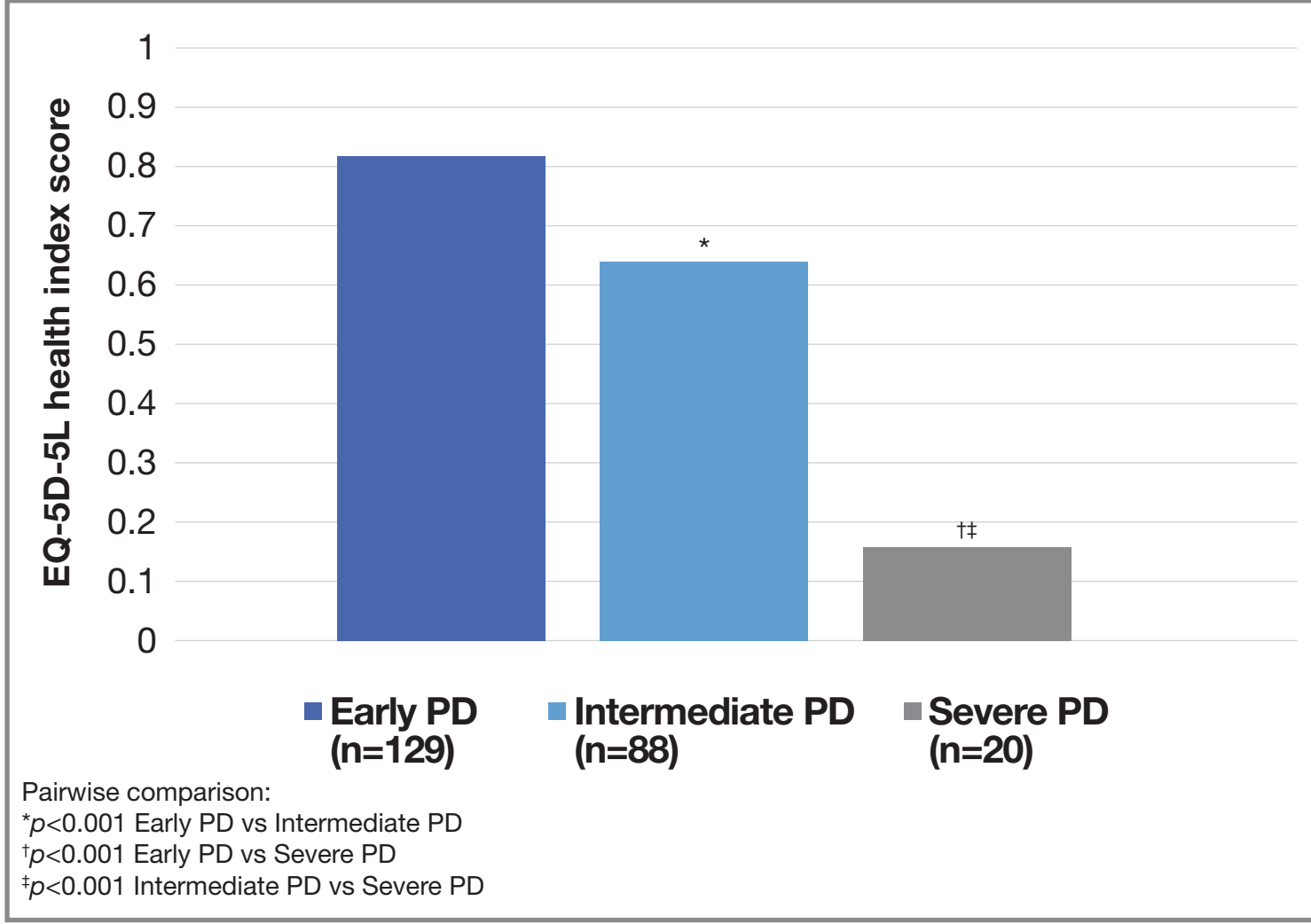
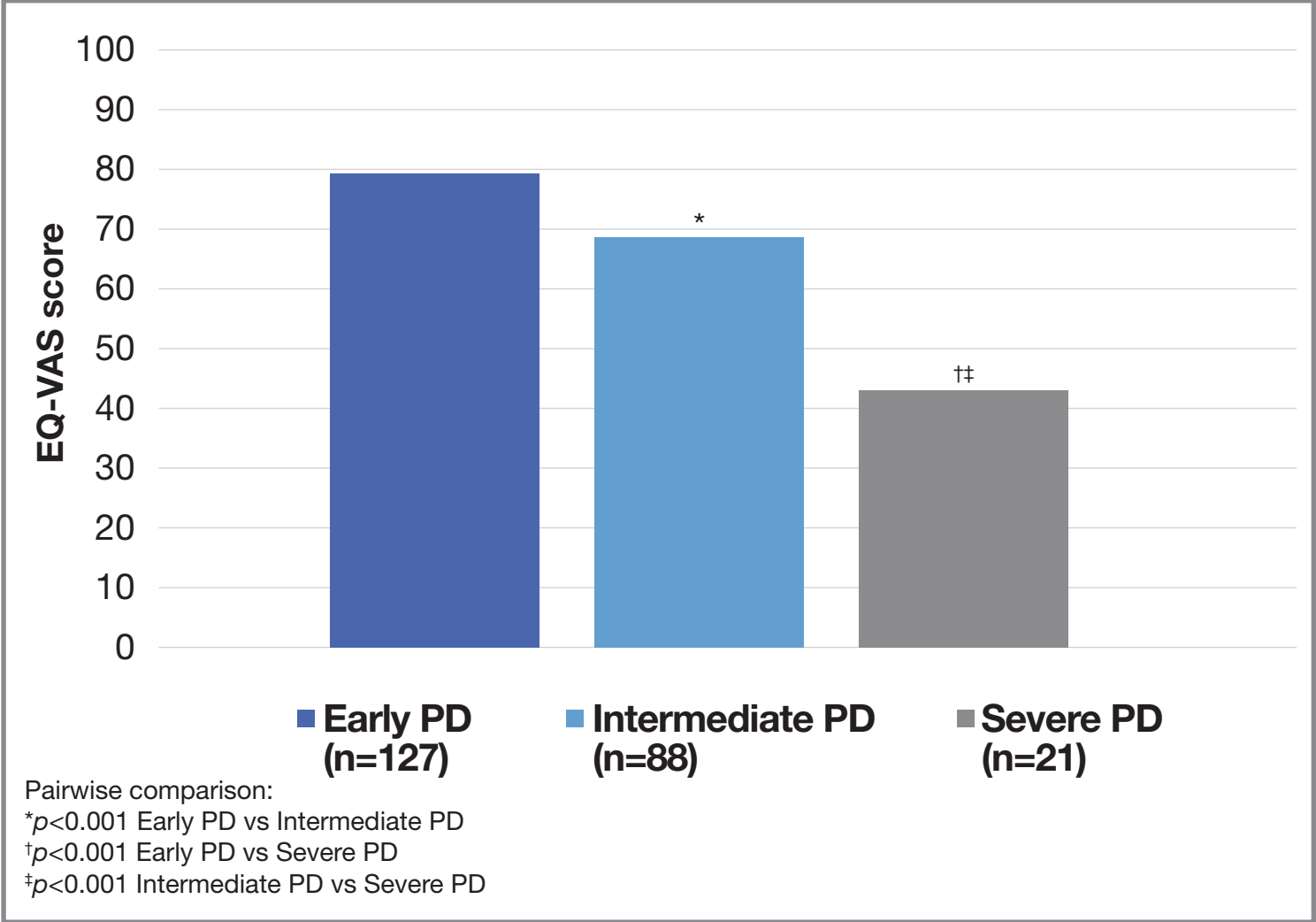


Figure 6. EQ-VAS by H&Y stage



- Increasing disease severity was associated with significantly higher PDQ-39 scores ( $p<0.001$ ) (Figure 7) and increased activity impairment ( $p<0.001$ ) (Figure 8)

Figure 7. PDQ-39 score by H&Y stage

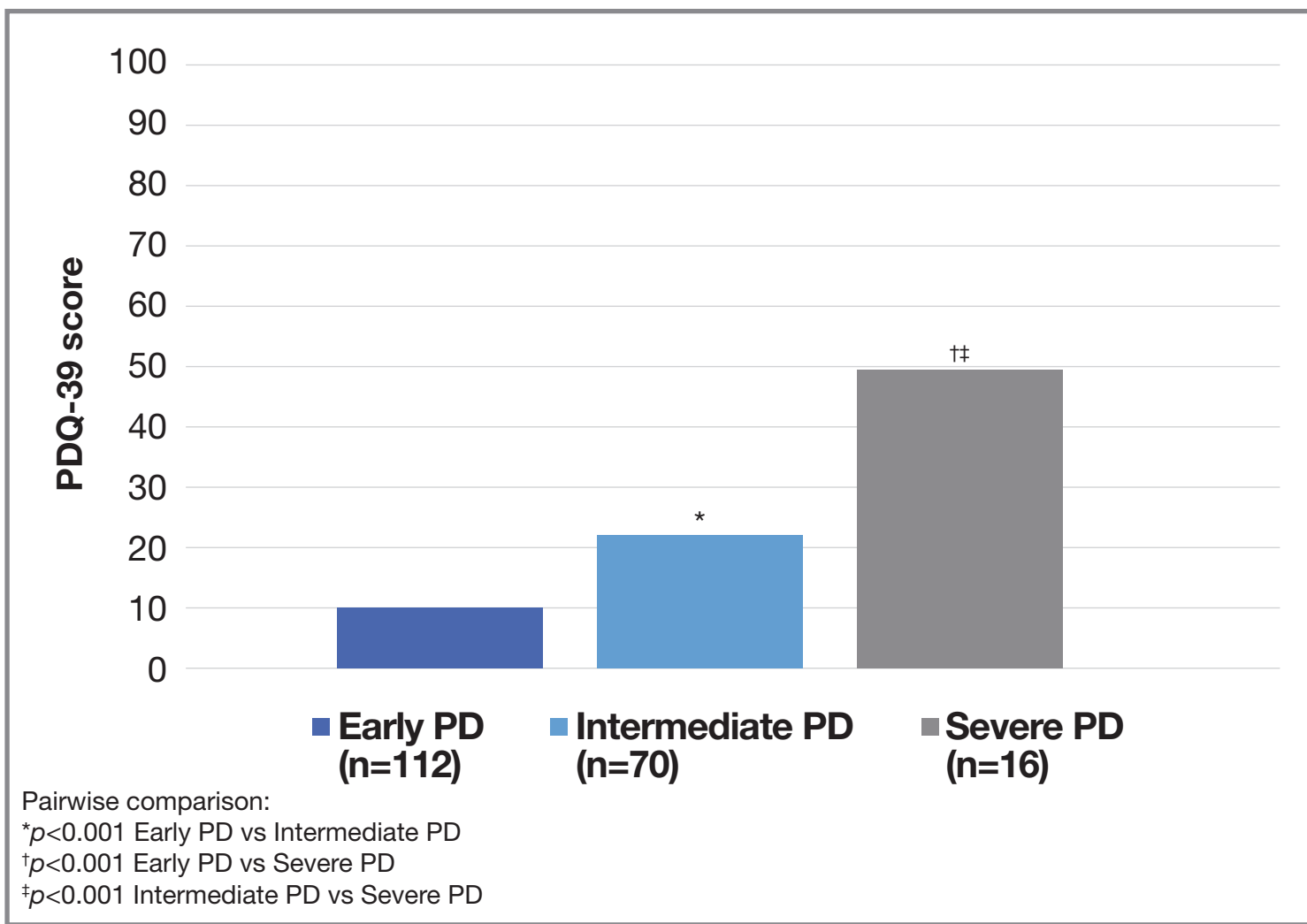
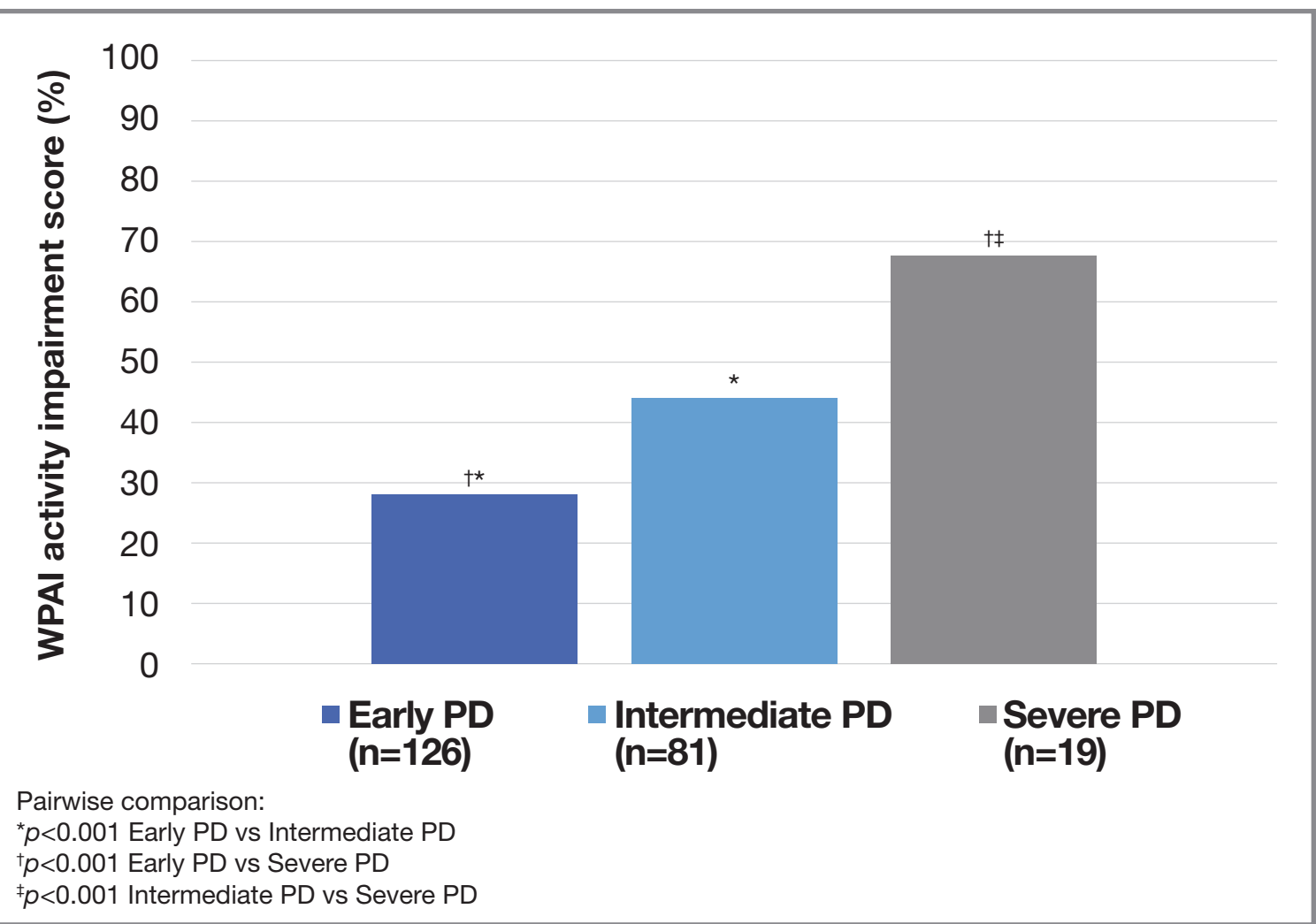


Figure 8. WPAI activity impairment score by H&Y stage



## CONCLUSIONS

- Patients experience significant increases in condition burden and unmet treatment needs when progressing from Early to Intermediate PD
- Patients reported significantly diminishing QoL from Early to Intermediate PD, demonstrating that, despite a diverse drug market for PD, current treatment management options for Intermediate PD are inadequate
- While the decline in patient health from Early to Severe PD is accepted as part of the disease course, these findings underscore the significant decline in patients with PD by the Intermediate stage, rather than the Severe stage alone heralding the worst of the decline
- There is a need for new PD treatment options which stabilize or improve patient health at the Intermediate stage. A new product helping to slow and smooth the steep decline over the course of the condition could significantly reduce the burden placed upon patients with PD, their caregivers, and the US healthcare system

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## ACKNOWLEDGMENTS

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## DISCLOSURE

M. Ciepielewska is an employee of Mitsubishi Tanabe Pharma America, Inc.  
M. Hagan is a former employee of Mitsubishi Tanabe Pharma America, Inc.  
E. Jones, A. Gillespie, C. Walker, and L. Le Brocq are employees of Adelphi Real World which received funding to conduct this study.  
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