

# Burden of Parkinson's Disease in a Real-World Sample of Patients with Motor Fluctuations

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## INTRODUCTION

- Levodopa is the most effective treatment for managing Parkinson's disease (PD) signs and symptoms, but motor fluctuations (MFs)/OFF-periods are important clinical concerns<sup>1</sup>
- Identification of wearing off is complicated by the lack of consensus definition, as well as its varied presentation among patients<sup>2</sup>
- Although adjunctive therapies can improve levodopa treatment outcomes, patients still experience OFF-periods and ON-periods with dyskinesia; extending "good" ON-periods (i.e., ON-periods without troublesome dyskinesia) continues to be a challenge<sup>3</sup>
- Data from **Evaluating Management of Parkinson's Disease with Motor Fluctuations: Medical Therapy, Disease Burden, and Resource Utilization (EMPATHY)**, a retrospective medical chart review study, were evaluated to characterize OFF- and ON-periods and health-related quality of life (HRQoL) in a real-world sample of PD patients experiencing MFs with carbidopa/levodopa (CD/LD) and other adjunctive PD treatments

## METHODS

- Neurologists treating patients with PD in the United States participated in the EMPATHY study
- Medical charts included in the study were for patients 18 years or older with PD who began experiencing MFs between January 2014 and April 2019 while taking CD/LD
- Data were extracted from patients' medical records by the treating physician
- Outcomes, as recorded from the most recent office visit, included: waking hours in OFF-state; waking hours in ON-state with troublesome dyskinesia; and presence of motor and nonmotor symptoms in ON- and OFF-states
- HRQoL was assessed using the EuroQoL-5 Dimension-5 Level (EQ-5D-5L) utility index (range, less than 0 with 0 [state equivalent to death] and 1 [perfect health]), visual analog scale (VAS: range, 0 [worst possible health] to 100 [best possible health]), and dimension scores (range, 1 [no problems] to 5 [extreme problems])

## RESULTS

- Data for 310 patients with PD and MFs were provided by 28 neurologists
- Patient characteristics are presented in **Table 1**

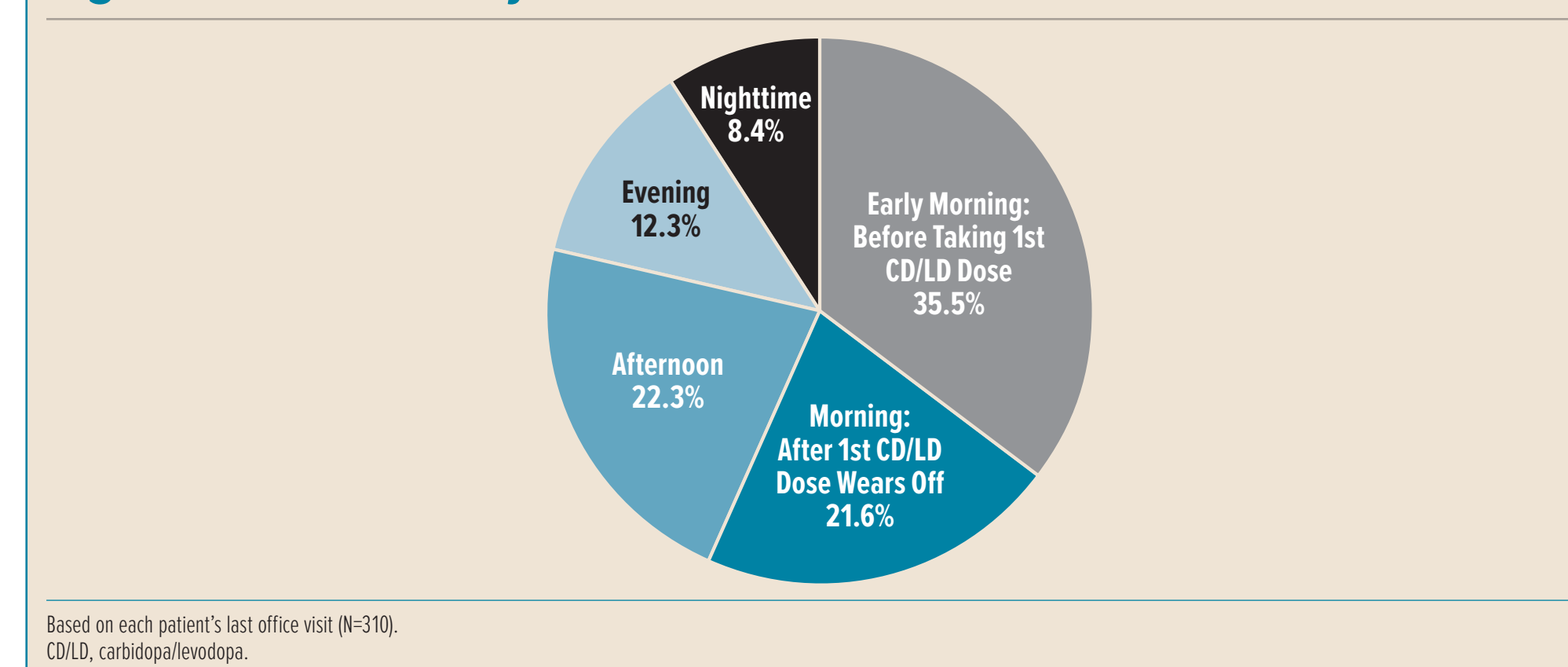
**Table 1. Patient Characteristics**

	All Patients (N=310)
Age, median (Q1–Q3), years	
At onset of PD	64.8 (58.0–71.3)
At onset of PD with MFs	69.1 (63.3–75.6)
Male, n (%)	189 (61.0)
Race, n (%)	
White	287 (92.6)
Black	15 (4.8)
Asian	6 (1.9)
Other	2 (0.6)
H&Y stage during the ON-state at onset of MF, n (%)	
1	44 (14.2)
1.5	40 (12.9)
2	135 (43.5)
2.5	44 (14.2)
3	45 (14.5)
4	2 (0.6)
Presence of dyskinesia during the ON-state at onset of MF, n (%)	97 (31.3)

H&Y, Hoehn and Yahr scale; MF, motor fluctuations; PD, Parkinson's disease.

- At patients' most recent visit, the median number of total waking hours (Q1–Q3) was 16.0 (14.0–17.0)
  - Overall, patients experienced 24.5% and 7.2% of their waking hours in the OFF-state and ON-state with troublesome dyskinesia, respectively
- More than 50% patients reported that OFF-periods were most bothersome in the early morning before taking first CD/LD dose or in the morning after first CD/LD dose wears off (**Figure 1**)

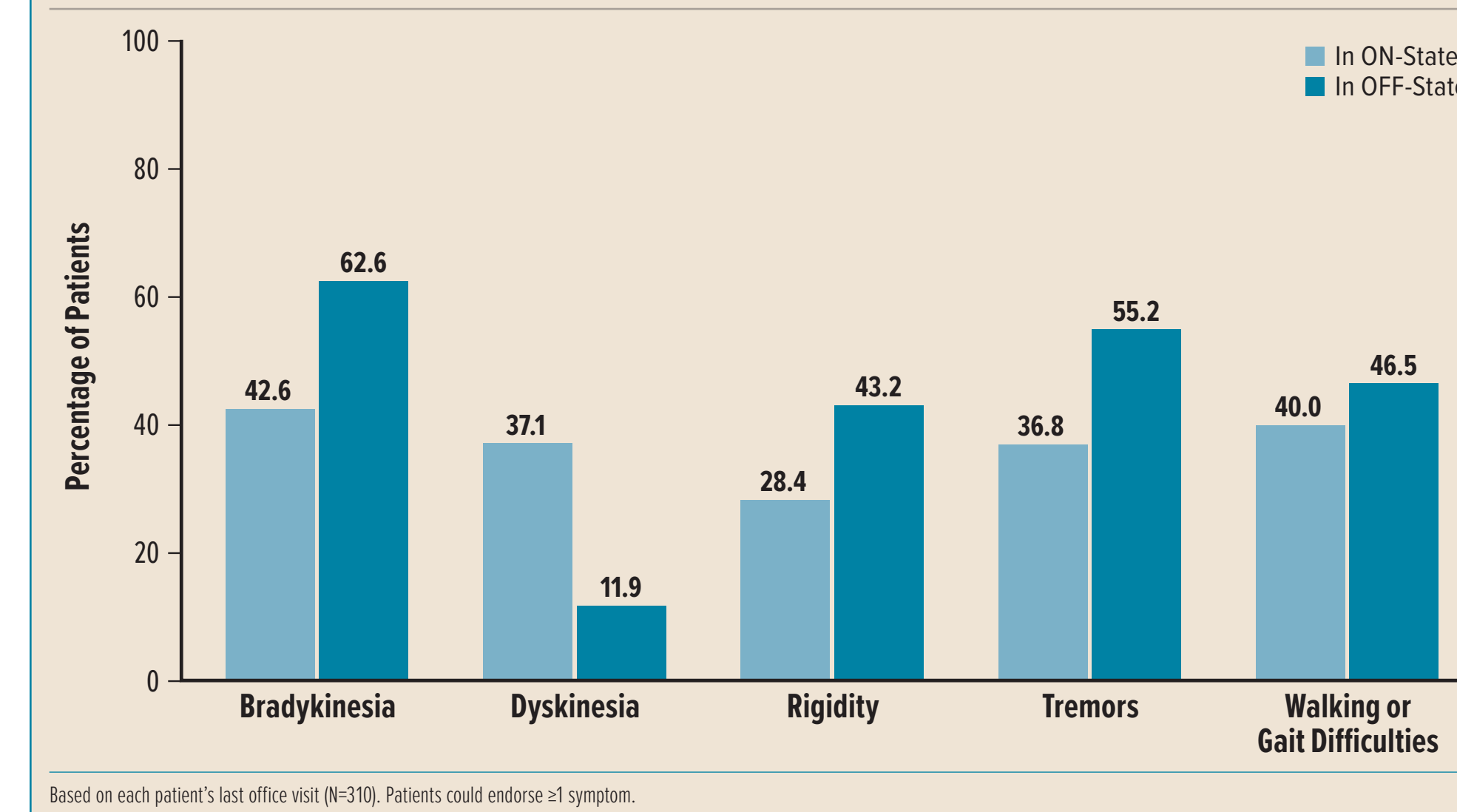
**Figure 1. Time of Day with Most Bothersome OFF-Period**



Based on each patient's last office visit (N=310). CD/LD, carbidopa/levodopa.

- All motor symptoms (except for dyskinesia) were reported in a higher proportion of patients in OFF- vs ON-state, especially bradykinesia, rigidity, and tremor (**Figure 2**)

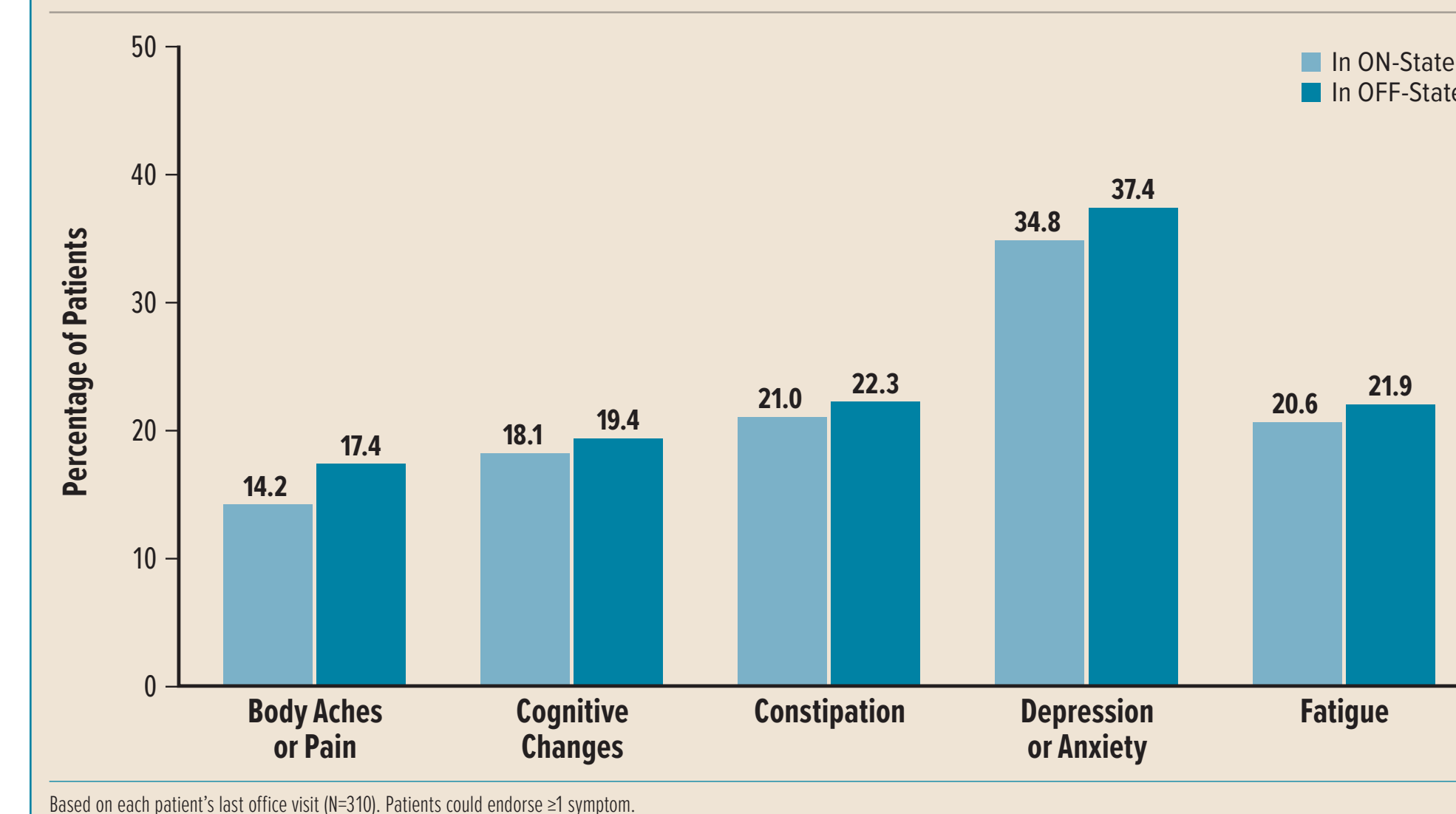
**Figure 2. Motor Symptoms During ON- and OFF-States**



Based on each patient's last office visit (N=310). Patients could endorse ≥1 symptom.

- Nonmotor symptoms were slightly more common in the OFF-state, with body aches/pain having the greatest relative difference vs ON-state (**Figure 3**)

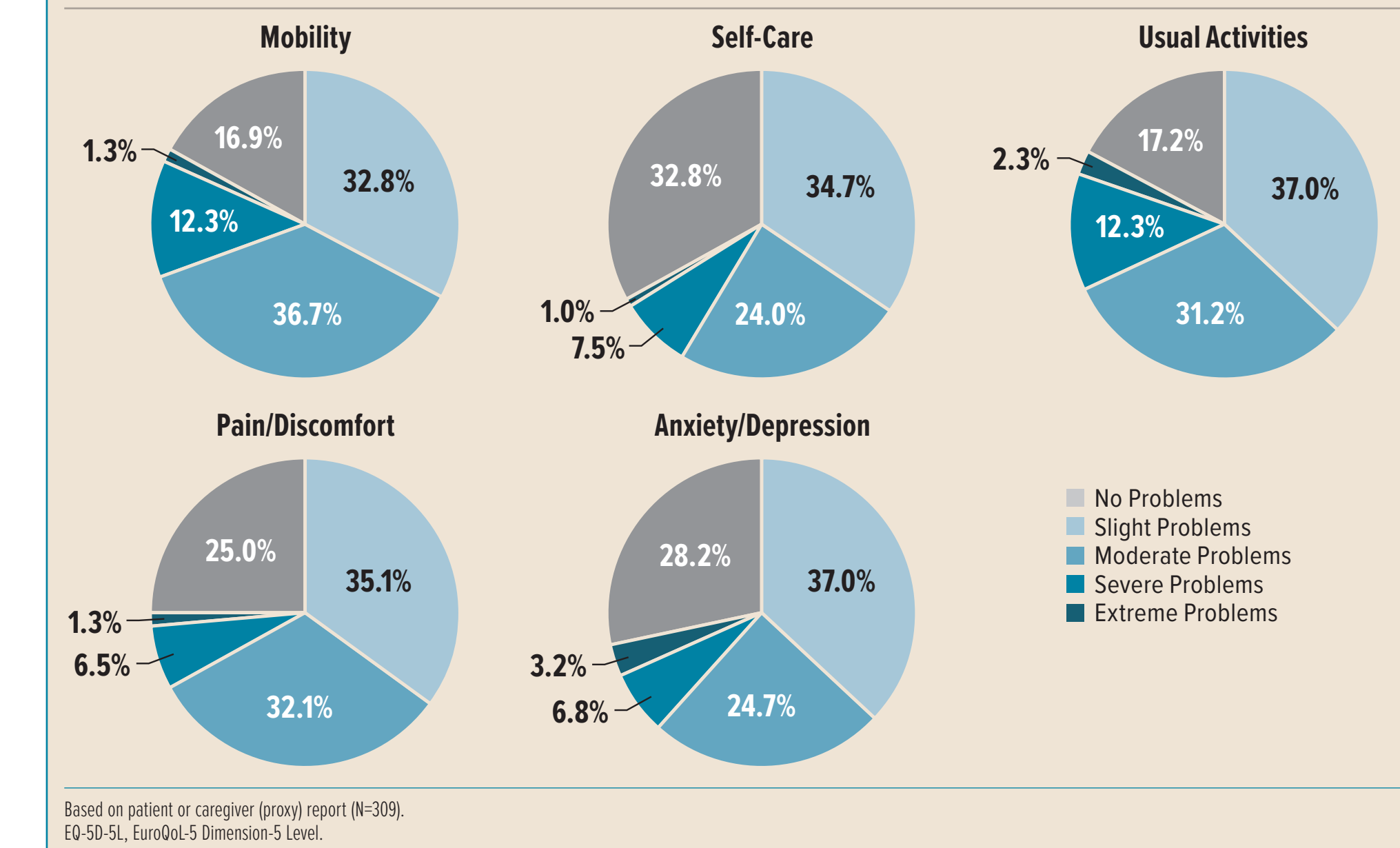
**Figure 3. Nonmotor Symptoms During ON- and OFF-States**



Based on each patient's last office visit (N=310). Patients could endorse ≥1 symptom.

- EQ-5D-5L results from all patients with available data (N=309) suggested poor HRQoL
  - Mean utility score (±SD) was 0.56 (±0.28); mean VAS score was 66.8 (±18.7)
  - Approximately one-half of patients reported having problems with mobility and usual activities (**Figure 4**)

**Figure 4. Distribution of EQ-5D-5L Dimension Scores**



Based on patient or caregiver (proxy) report (N=309). EQ-5D-5L, EuroQoL-5 Dimension-5 Level.

## CONCLUSIONS

- In the real-world EMPATHY study, patients with PD experiencing MFs spent 25% of waking hours in the OFF-state and 7% in the ON-state with troublesome dyskinesia, despite being treated with CD/LD and other PD medications
- Most patients experienced the most bothersome OFF-period in the morning, either early morning after waking (before taking the first CD/LD dose) or after the first CD/LD dose wears off
- Motor and nonmotor symptoms were generally more prevalent in the OFF-state than ON-state
- These results indicate that despite the many treatment options available for patients with PD and MFs, a need still exists for therapies that can prolong the effects of levodopa

## REFERENCES

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