



# Non motor Symptoms Burden and Motor Staging of Parkinson's Disease: Evidence for Dichotomy and Non-motor Dominant Subtypes from Analysis of 249 Cases.

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## OBJECTIVE

- To address the co-occurrence of the non-motor symptoms burden and motor severity grading of Parkinson's disease (PD) using the Hoehn and Yahr (HY) staging in a multi-centre study currently with 249 patients.

## BACKGROUND

- The concept of non-motor subtypes (with increased burden of specific NMS) in PD is now recognised<sup>1,2</sup>
- The relationship of NMS subtypes, NMS burden and motor staging of PD is not known.
- NMS burden can be divided in mild (1-5), moderate (6-9), severe (10-13) and very severe (≥14) according to NMS Scale<sup>3</sup>.

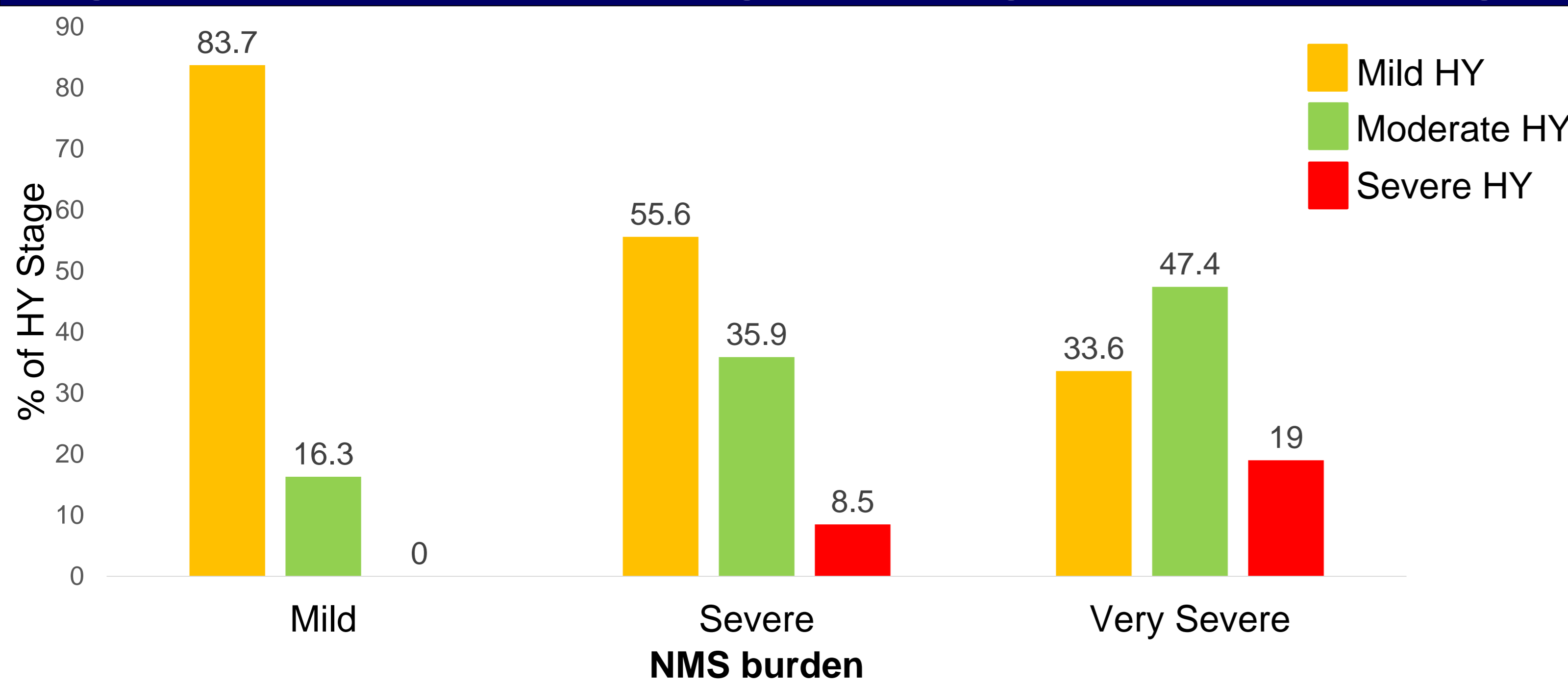
## METHODS

- Analysis of a global real life PD database (part of the MDS Non-motor PD Study Group initiative) of 249 cases with published NMS burden grading, HY staging and additional comorbidity measures.
- We used mild HY stage as an anchor and in this analysis only mild, severe and very severe NMS Burden are included and correlated.
- For analysis, Kruskal-Wallis (K-W) test was used.
- When the result of the K-W test was significant ( $p < 0.05$ ), comparisons between the groups were explored by means of the Mann-Whitney test.

## RESULTS

- Those with severe and very severe NMS burden but mild motor disease (mild HY) compared to those with mild NMS burden, were significantly:
  - younger
  - had higher motor disability
  - had greater sleep problems
  - had greater anxiety symptoms
  - reported greater depression
  - had a worse quality of life

Figure 1: Distribution of HY stage according to the NMS burden grading



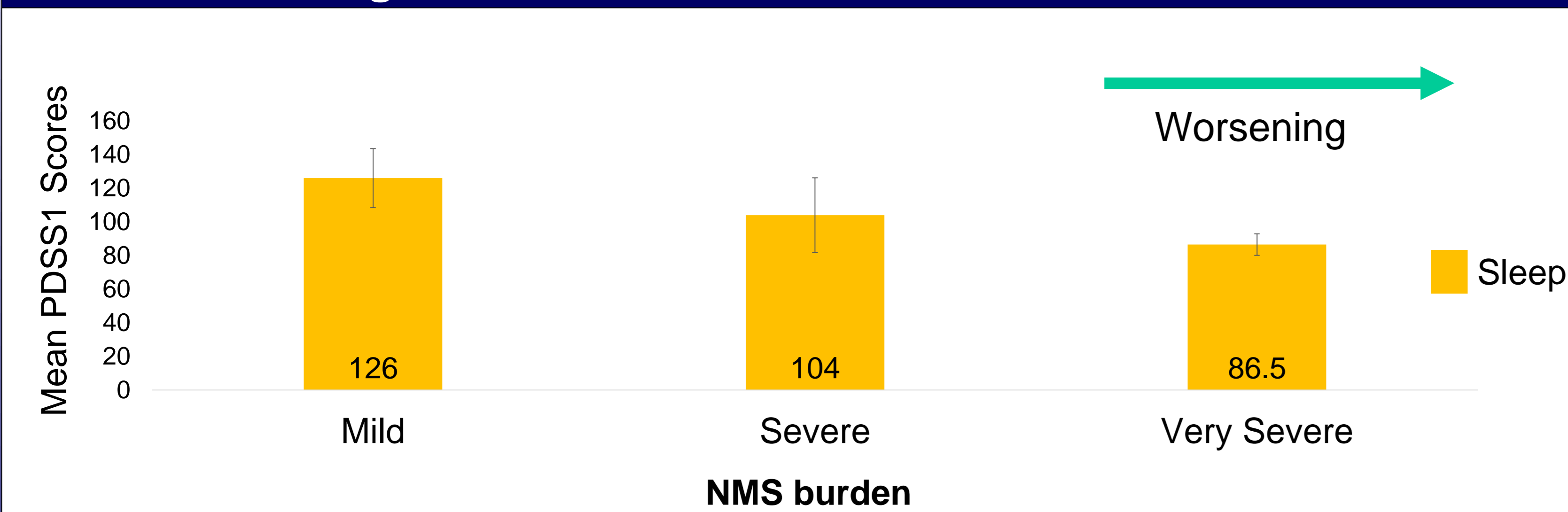
HY: Hoehn and Yahr; NMS: Non-motor symptoms

Table 1: Demographics and PD Data

Non-motor symptoms burden	Sex (Males %)	Age (Mean± SD)	Duration (Mean± SD)	LEDD Scores (Mean± SD)
Mild	75%	68.39± 10.6	5.48± 2.82	299.24± 281.13
Severe	58%	66.88± 11.57	6.73± 4.97	463.11± 467.02
Very Severe	26%	63.20± 9.59	7.11± 5.88	460.76± 413.98

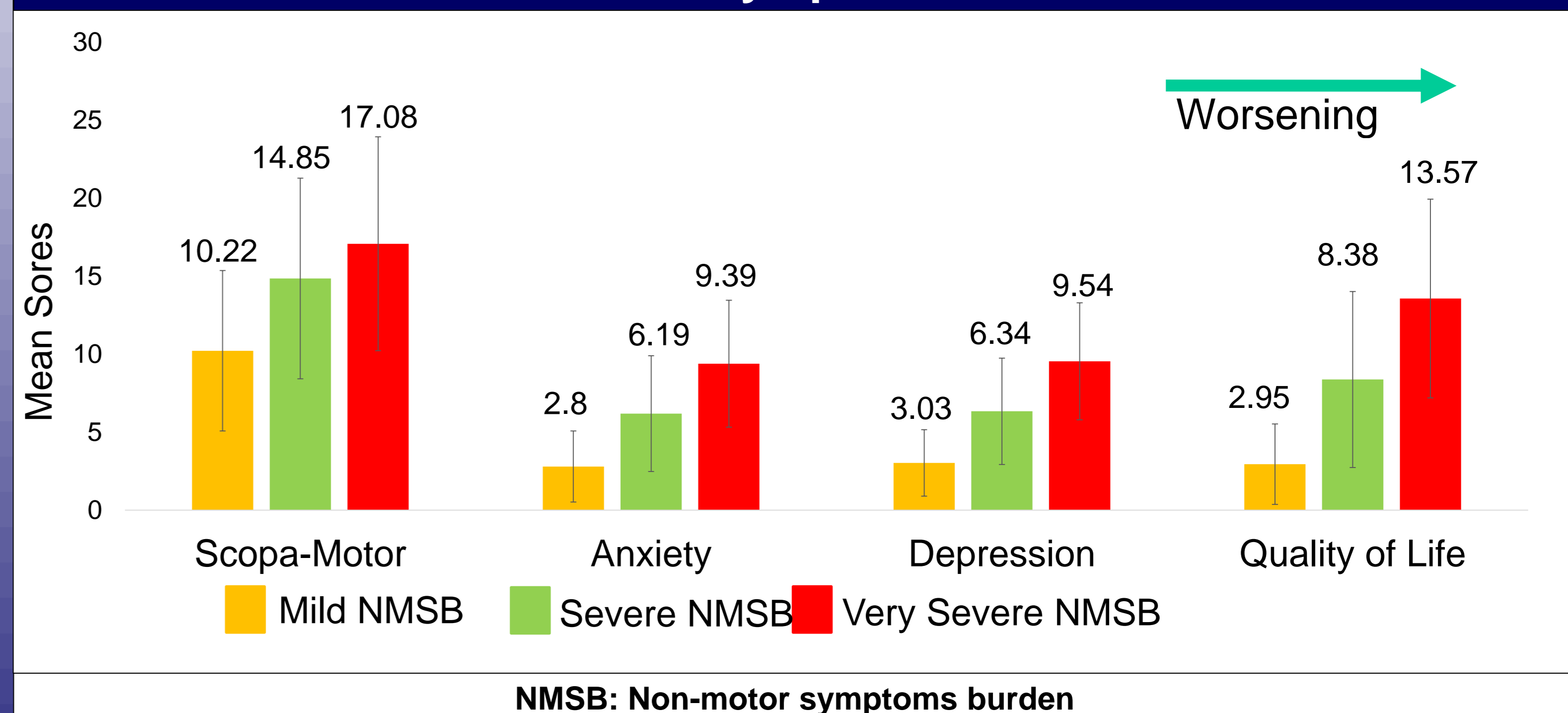
PD: Parkinson's disease; LEDD: Levodopa equivalent daily dose; SD: Standard deviation

Figure 2: PDSS total scores and NMS burden



PDSS: Parkinson's disease symptoms scale; NMS: Non-motor symptoms

Figure 3: Motor, non-motor, quality of life variables stratified by non-motor symptoms burden



## CONCLUSIONS

- In this analysis we found that in spite of severe or very severe NMS burden, 55.6% in the severe NMS burden and 33.6% in the very severe NMS burden group had mild HY.
- The patients often express a range of NMS as their dominant clinical phenotype, supporting the NMS dominant subtypes<sup>1,2</sup>.
- We also report a worsening of motor scores, sleep and quality of life with worsening NMS burden.

- REFERENCES
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