



# Assessing the convergent validity of two measures of non-motor symptoms in Parkinson's disease

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## BACKGROUND

- Although Parkinson's disease (PD) is primarily characterised by motor symptoms, non-motor symptoms (NMS) have a profound impact on patients' quality of life<sup>1</sup>.
- The present study aimed to determine how well two validated measures of NMS: a patient-completed NMS Questionnaire (NMSQuest)<sup>2</sup>, and the healthcare professional-completed NMS scale (NMSS)<sup>3</sup>, evaluate the presence of NMS in patients.

## METHOD

- Data were obtained from an ongoing multicentre study. We acquired baseline data for 321 participants with idiopathic PD. The validated tools (NMSQuest and NMSS) were filled out in the clinic by patients and a healthcare professional, respectively.
- In order to compare the NMSQuest and NMSS, all NMSQuest items were sorted into the existing domains of the NMSS, based on their alignment with the original NMSS items in each domain. For NMSQuest items which did not align with original NMSS items (items 4, 6, 7, 24, 25, 27), we used clinical judgment to sort these into appropriate domains.
- We determined the prevalence of each NMS domain for the sample by calculating the percentage of respondents who achieved a score higher than zero in each domain. We then generated Spearman's rank correlation coefficients for the total scores and also for each domain. NMSS scores were a product of frequency and severity ratings, whereas NMSQuest scores indicated the number of NMS experienced by patients.

## RESULTS

- The total NMSQuest and NMSS scores were strongly associated ( $r = 0.81$ ).
- Additionally, the mood, perception, attention/memory, gastrointestinal and miscellaneous domains showed a strong association between the NMSQuest and NMSS measurements.
- Furthermore, the cardiovascular, sleep, and urinary domains showed moderate associations between the two scales.

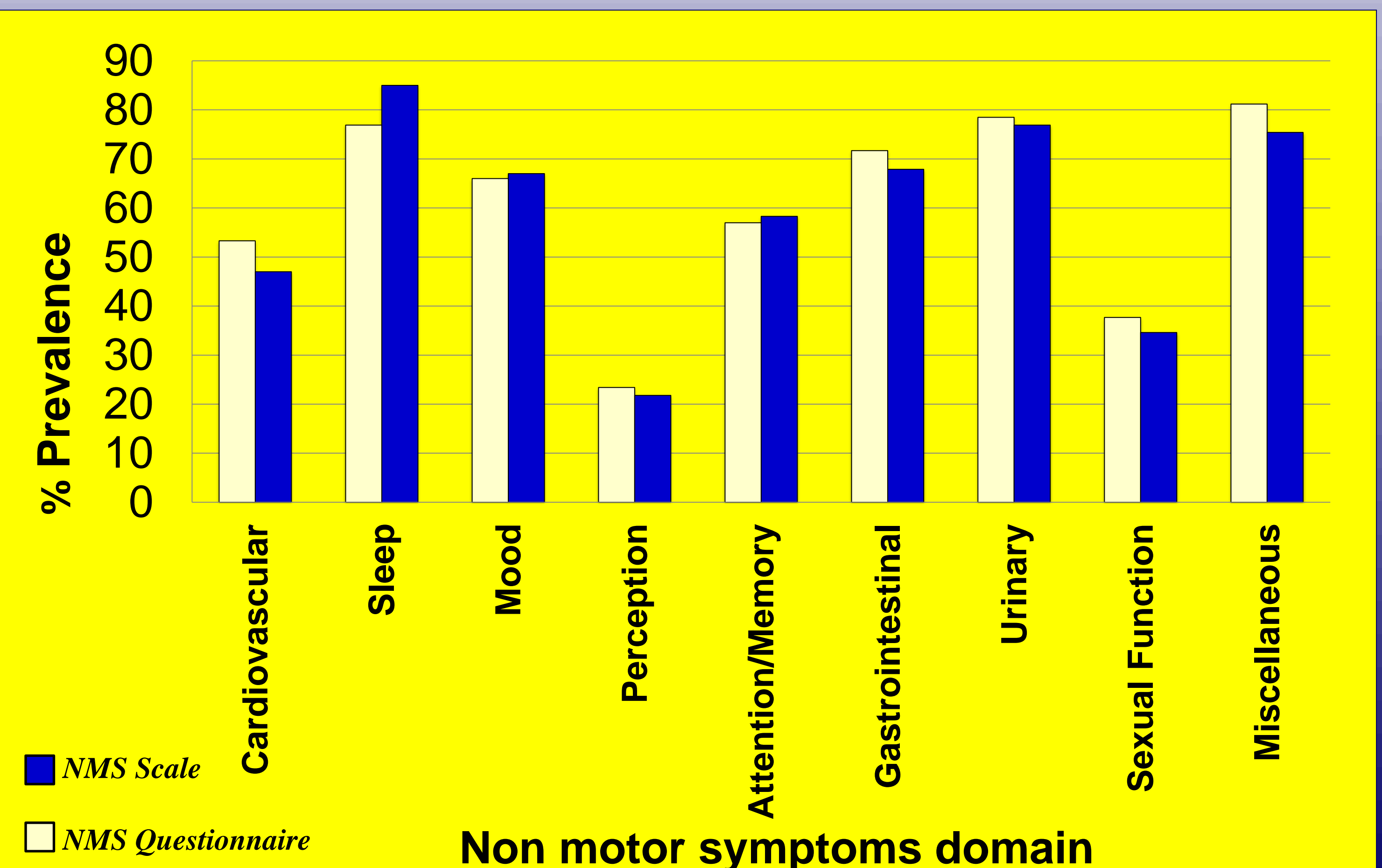
**Table 1: Demographics and Clinical profile of participants**

|                             | N = 321 | Mean  | Standard deviation |
|-----------------------------|---------|-------|--------------------|
| Age (years)                 |         | 66.16 | 11.36              |
| Age at Onset (years)        |         | 60.97 | 12.23              |
| Disease Duration (years)    |         | 5.21  | 5.19               |
| Education (years)           |         | 14.64 | 4.30               |
| % of Males                  |         |       | 66.7               |
| Hoehn & Yahr Score (median) |         |       | 2.00               |

**Table 2: Correlation between Domains Measured by NMSS & NMSQuest**

|   | Domains                  | Correlation Coefficient<br>(all significant for $p = 0.01$ ) |
|---|--------------------------|--|
| 1 | Cardiovascular           | 0.61   |
| 2 | Sleep                    | 0.66   |
| 3 | Mood                     | 0.79   |
| 4 | Perception               | 0.78   |
| 5 | Attention/Memory         | 0.78   |
| 6 | Gastrointestinal         | 0.75   |
| 7 | Urinary                  | 0.66   |
| 8 | Sexual Function          | 0.81   |
| 9 | Miscellaneous            | 0.70   |
| t | <b>Total Scale Score</b> | <b>0.81</b>  |

**Graph 1: Prevalence of non motor symptoms**



**ACKNOWLEDGMENTS:** This poster presents independent research funded by the National Institute for Health Research (NIHR) Mental Health Biomedical Research Centre and Dementia Unit at South London and Maudsley NHS Foundation Trust and King's College London. The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.

**REFERENCES:** <sup>1</sup>Martinez-Martin et al. (2011), Movement Disorders; 26(3): 399-406. <sup>2</sup>Chaudhuri et al. (2006), Parkinsonism and Related Disorders; 21(3): 287-291. <sup>3</sup>Chaudhuri et al. (2007), Movement Disorders; 22(13): 1901-1911.

## CONCLUSIONS:

To our knowledge, this is the first study to examine the convergent validities of each NMS domain measured by the NMSQuest and NMSS. We observed strong or moderate relationships between NMSQuest and NMSS scores for all domains, suggesting that assessments of NMS need not be time-consuming or labour intensive, as the NMSQuest, a validated tool, can be effectively used to screen for NMS.