

**Supplementary Table 3.** Diagnostic performance of binary data of 30 items of the MoCA for distinguishing PD-NC and PD-CI according to classification model

Dataset	No. of results (patients) in PD-CI	No. of results (patients) in PD-NC	Classification method	Type of MoCA data	Inclusion of SGDS	Inclusion of cognitive complaints	ACC (mean $\pm$ SD)	Sensitivity	Specificity	PPV	NPV
I	221 (101)	1,848 (370)	Cutoff 26	Total score	No	No	0.78 $\pm$ 0.02	0.76	0.81	0.30	0.97
	221 (101)	1,848 (370)	Logistic regression	Binary data	No	No	0.93 $\pm$ 0.01	0.47	0.98	0.76	0.94
	221 (101)	1,848 (370)	Random forest	Binary data	No	No	0.93 $\pm$ 0.01	0.36	0.99	0.86	0.93
	221 (101)	1,848 (370)	SVM	Binary data	No	No	0.93 $\pm$ 0.00	0.43	0.99	0.81	0.94
II	221 (101)	221 (370)	Cutoff 26	Total score	No	No	0.74 $\pm$ 0.03	0.71	0.78	0.77	0.72
	221 (101)	221 (370)	Random forest	Binary data	No	No	0.76 $\pm$ 0.04	0.68	0.84	0.82	0.72
	221 (101)	221 (370)	Random forest	Binary data	No	Yes	0.88 $\pm$ 0.04	0.88	0.88	0.88	0.88
	221 (101)	221 (370)	Random forest	Binary data	Yes	No	0.76 $\pm$ 0.03	0.68	0.85	0.82	0.72
	221 (101)	221 (370)	Random forest	Binary data	Yes	Yes	0.87 $\pm$ 0.03	0.85	0.88	0.88	0.85
III	101 (101)	101 (370)	Cutoff 26	Total score	No	No	0.66 $\pm$ 0.05	0.61	0.71	0.69	0.64
	101 (101)	101 (370)	Random forest	Binary data	No	No	0.75 $\pm$ 0.07	0.72	0.78	0.78	0.72
	101 (101)	101 (370)	Random forest	Binary data	No	Yes	0.87 $\pm$ 0.05	0.90	0.84	0.85	0.89
	101 (101)	101 (370)	Random forest	Binary data	Yes	No	0.76 $\pm$ 0.06	0.73	0.78	0.78	0.73
	101 (101)	101 (370)	Random forest	Binary data	Yes	Yes	0.86 $\pm$ 0.05	0.88	0.84	0.85	0.87

Values for diagnostic performance were the average of 1,000 iterations. In dataset I, all 221 MoCA results from 101 patients with PD-CI and 1,848 results from 370 patients with PD-NC were used. In dataset II, all 221 MoCA results from 101 patients with PD-CI and 221 results randomly sampled from 1,848 results tested on 370 patients with PD-NC were used. In dataset III, 101 MoCA results were randomly selected independently from 101 patients with PD-CI and 370 patients with PD-NC, respectively. MoCA, Montreal Cognitive Assessment; PD-NC, Parkinson's disease with normal cognition; PD-CI, Parkinson's disease with cognitive impairment; SGDS, short version of the Geriatric Depression Scale; ACC, accuracy; SD, standard deviation; PPV, positive predictive value; NPV, negative predictive value; SVM, support vector machine.