

Supplementary Table 1. Model fit diagnostics for negative binomial mixed-effects models

Analysis	Diagnostic test	Test statistic	P-value
MDS-UPDRS part 1 and total PASE score	Uniformity test (Kolmogorov–Smirnov)	D = 0.040	0.344
	Dispersion test	Dispersion = 0.601	0.26
	Zero-inflation test	RatioObs/Sim = 1.163	0.392
	Collinearity	VIF < 2	-
MDS-UPDRS part 2 and total PASE score	Uniformity test (Kolmogorov–Smirnov)	D = 0.032	0.625
	Dispersion test	Dispersion = 0.088	0.128
	Zero-inflation test	RatioObs/Sim = 0.968	0.594
	Collinearity	VIF < 2	-
MDS-UPDRS part 3 and total PASE score	Uniformity test (Kolmogorov–Smirnov)	D = 0.057	0.059
	Dispersion test	Dispersion = 0.189	0.214
	Zero-inflation test	RatioObs/Sim = 1.053	0.61
	Collinearity	VIF < 2	-
MDS-UPDRS part 1 and Leisure PASE score	Uniformity test (Kolmogorov–Smirnov)	D = 0.034	0.544
	Dispersion test	Dispersion = 0.590	0.286
	Zero-inflation test	RatioObs/Sim = 1.172	0.346
	Collinearity	VIF < 2	-
MDS-UPDRS part 2 and Leisure PASE score	Uniformity test (Kolmogorov–Smirnov)	D = 0.024	0.906
	Dispersion test	Dispersion = 0.078	0.108
	Zero-inflation test	RatioObs/Sim = 0.970	0.656
	Collinearity	VIF < 2	-
MDS-UPDRS part 3 and Leisure PASE score	Uniformity test (Kolmogorov–Smirnov)	D = 0.053	0.101
	Dispersion test	Dispersion = 0.258	0.192
	Zero-inflation test	RatioObs/Sim = 1.066	0.542
	Collinearity	VIF < 2	-

MDS-UPDRS part 1 and Household PASE score	Uniformity test (Kolmogorov– Smirnov)	D = 0.032	0.601
	Dispersion test	Dispersion = 0.610	0.282
	Zero-inflation test	RatioObs/Sim = 1.162	0.37
	Collinearity	VIF < 2	-
MDS-UPDRS part 2 and Household PASE score	Uniformity test (Kolmogorov– Smirnov)	D = 0.058	0.052
	Dispersion test	Dispersion = 0.064	0.12
	Zero-inflation test	RatioObs/Sim = 0.971	0.628
	Collinearity	VIF < 2	-
MDS-UPDRS part 3 and Household PASE score	Uniformity test (Kolmogorov– Smirnov)	D = 0.046	0.201
	Dispersion test	Dispersion = 0.248	0.194
	Zero-inflation test	RatioObs/Sim = 1.055	0.562
	Collinearity	VIF < 2	-
MDS-UPDRS part 1 and Work PASE score	Uniformity test (Kolmogorov– Smirnov)	D = 0.035	0.517
	Dispersion test	Dispersion = 0.578	0.228
	Zero-inflation test	RatioObs/Sim = 1.172	0.372
	Collinearity	VIF < 2	-
MDS-UPDRS part 2 and Work PASE score	Uniformity test (Kolmogorov– Smirnov)	D = 0.042	0.279
	Dispersion test	Dispersion = 0.073	0.076
	Zero-inflation test	RatioObs/Sim = 0.972	0.658
	Collinearity	VIF < 2	-
MDS-UPDRS part 3 and Work PASE score	Uniformity test (Kolmogorov– Smirnov)	D = 0.046	0.201
	Dispersion test	Dispersion = 0.268	0.178
	Zero-inflation test	RatioObs/Sim = 1.062	0.55
	Collinearity	VIF < 2	-

Abbreviations: **VIF**, variance inflation factor; **RatioObs/Sim**, ratio of observed to simulated zeros; **MDS-UPDRS**, Movement Disorder Society–Unified Parkinson’s Disease Rating Scale.