

**Supplementary Table1. Tests of model effects for the generalized ordinal logistic models evaluating the sleep related problems item of MDS-UPDRS.**

Tests of Model Effects			
Source	Type III		
	Wald Chi-Square	df	Sig.
PDSS_01	35,643	4	,000
PDSS_02	25,506	4	,000
PDSS_03	81,840	4	,000
PDSS_04	1,580	4	,812
PDSS_05	10,528	4	,032
PDSS_06	2,532	4	,639
PDSS_07	6,080	4	,193
PDSS_08	7,001	4	,136
PDSS_09	1,552	4	,817
PDSS_10	2,917	4	,572
PDSS_11	2,179	4	,703
PDSS_12	,344	4	,987
PDSS_13	5,135	4	,274
PDSS_14	5,604	4	,231
PDSS_15	2,961	4	,564

Dependent Variable: @1\_7

Model: (Threshold), PDSS\_01, PDSS\_02, PDSS\_03, PDSS\_04, PDSS\_05, PDSS\_06, PDSS\_07, PDSS\_08, PDSS\_09, PDSS\_10, PDSS\_11, PDSS\_12, PDSS\_13, PDSS\_14, PDSS\_15

**Supplementary Table 2. Model parameters for the generalized ordinal logistic models evaluating the sleep related problems item of MDS-UPDRS**

Parameter Estimates										
Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
			Threshold							
[@1_7=4]	-8,190	,5659	-9,299	-7,081	209,409	1	,000	,000	9,152E-005	,001
[@1_7=3]	-4,938	,4625	-5,844	-4,031	113,958	1	,000	,007	,003	,018
[@1_7=2]	-3,349	,4321	-4,196	-2,502	60,081	1	,000	,035	,015	,082
[@1_7=1]	-1,504	,4009	-2,290	-,718	14,078	1	,000	,222	,101	,488
[PDSS_01=4]	-1,695	,4604	-2,597	-,793	13,556	1	,000	,184	,074	,453
[PDSS_01=3]	-2,059	,4069	-2,857	-1,262	25,619	1	,000	,128	,057	,283
[PDSS_01=2]	-1,710	,3422	-2,381	-1,040	24,989	1	,000	,181	,092	,354
[PDSS_01=1]	-,945	,2927	-1,519	-,372	10,428	1	,001	,389	,219	,690
[PDSS_01=0]	0 <sup>a</sup>	.	.	.	.	.	.	1	.	.
[PDSS_02=4]	-1,884	,5634	-2,988	-,779	11,178	1	,001	,152	,050	,459
[PDSS_02=3]	-1,973	,4358	-2,827	-1,119	20,494	1	,000	,139	,059	,327
[PDSS_02=2]	-,625	,3095	-1,231	-,018	4,073	1	,044	,535	,292	,982
[PDSS_02=1]	-,621	,2978	-1,205	-,038	4,355	1	,037	,537	,300	,963
[PDSS_02=0]	0 <sup>a</sup>	.	.	.	.	.	.	1	.	.
[PDSS_03=4]	-3,362	,4168	-4,179	-2,545	65,056	1	,000	,035	,015	,078
[PDSS_03=3]	-2,440	,3877	-3,200	-1,680	39,606	1	,000	,087	,041	,186
[PDSS_03=2]	-2,025	,3289	-2,670	-1,381	37,920	1	,000	,132	,069	,251
[PDSS_03=1]	-,843	,3250	-1,480	-,207	6,736	1	,009	,430	,228	,813
[PDSS_03=0]	0 <sup>a</sup>	.	.	.	.	.	.	1	.	.
[PDSS_04=4]	-,016	,6079	-1,207	1,176	,001	1	,979	,984	,299	3,241
[PDSS_04=3]	,379	,4275	-,459	1,217	,786	1	,375	1,461	,632	3,377
[PDSS_04=2]	,021	,3190	-,605	,646	,004	1	,948	1,021	,546	1,908
[PDSS_04=1]	-,170	,3177	-,793	,453	,286	1	,593	,844	,453	1,573
[PDSS_04=0]	0 <sup>a</sup>	.	.	.	.	.	.	1	.	.
[PDSS_05=4]	-1,480	,6581	-2,770	-,190	5,059	1	,024	,228	,063	,827
[PDSS_05=3]	-1,118	,4325	-1,965	-,270	6,675	1	,010	,327	,140	,764
[PDSS_05=2]	-,509	,3304	-1,156	,139	2,371	1	,124	,601	,315	1,149
[PDSS_05=1]	,058	,3149	-,559	,676	,034	1	,853	1,060	,572	1,965
[PDSS_05=0]	0 <sup>a</sup>	.	.	.	.	.	.	1	.	.
[PDSS_06=4]	-,051	,7832	-1,586	1,484	,004	1	,948	,950	,205	4,411
[PDSS_06=3]	-,377	,5707	-1,496	,741	,437	1	,509	,686	,224	2,099
[PDSS_06=2]	,015	,3013	-,575	,606	,003	1	,959	1,015	,563	1,833
[PDSS_06=1]	,367	,2732	-,168	,903	1,807	1	,179	1,444	,845	2,466
[PDSS_06=0]	0 <sup>a</sup>	.	.	.	.	.	.	1	.	.
[PDSS_07=4]	,171	1,067 6	-1,921	2,264	,026	1	,873	1,187	,146	9,620
[PDSS_07=3]	-,992	1,011 9	-2,975	,991	,961	1	,327	,371	,051	2,694



Dependent Variable: @1\_7

Model: (Threshold), PDSS\_01, PDSS\_02, PDSS\_03, PDSS\_04, PDSS\_05, PDSS\_06, PDSS\_07, PDSS\_08, PDSS\_09, PDSS\_10, PDSS\_11, PDSS\_12, PDSS\_13, PDSS\_14, PDSS\_15

- a. Set to zero because this parameter is redundant.
- b. Fixed at the displayed value.

**Supplementary Table3. Tests of model effects for the generalized ordinal logistic models evaluating the daytime sleepiness item of MDS-UPDRS.**

**Tests of Model Effects**

Source	Type III		
	Wald Chi-Square	df	Sig.
ESS_01	10,106	3	,018
ESS_02	24,574	3	,000
ESS_03	8,747	3	,033
ESS_04	5,247	3	,155
ESS_05	4,032	3	,258
ESS_06	2,729	2	,256
ESS_07	8,683	3	,034
ESS_08	5,084	3	,166

Dependent Variable: @1\_8

Model: (Threshold), ESS\_01, ESS\_02, ESS\_03,

ESS\_04, ESS\_05, ESS\_06, ESS\_07, ESS\_08



Dependent Variable: @1\_8

Model: (Threshold), ESS\_01, ESS\_02, ESS\_03, ESS\_04, ESS\_05, ESS\_06, ESS\_07, ESS\_08

a. Set to zero because this parameter is redundant.

b. Fixed at the displayed value.