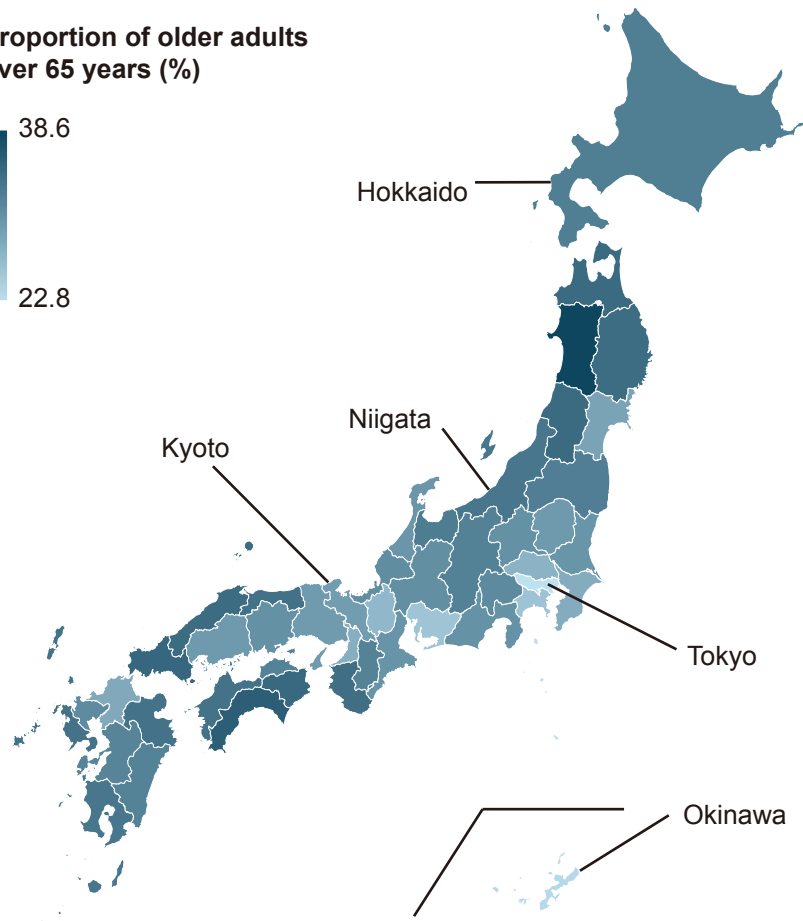


Supplementary Figure 1. Choropleth maps of proportion of older adults and board-certified neurologist density.

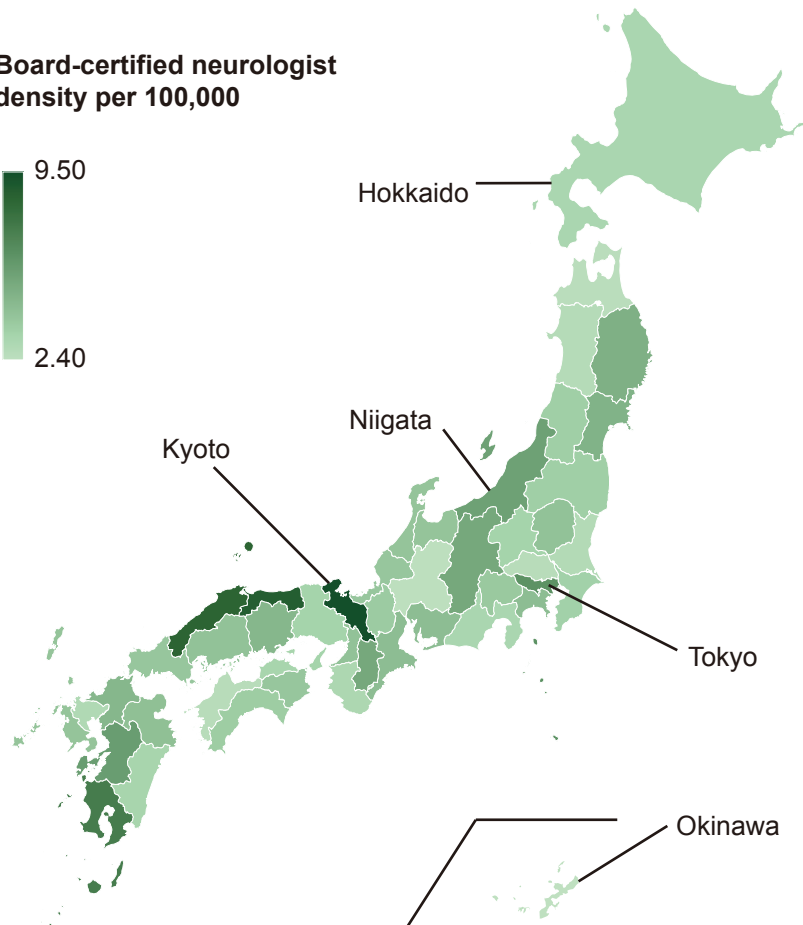
A

**Proportion of older adults
over 65 years (%)**



B

**Board-certified neurologist
density per 100,000**

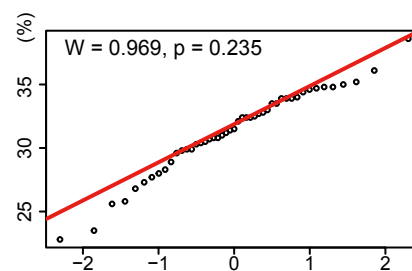
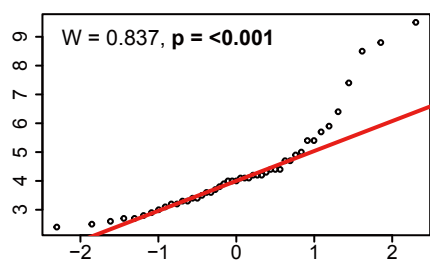


Choropleth maps of proportion of older adults over 65 years (A) and board-certified neurologist density per 100,000 (B) in Japan. Darker colors indicate higher proportions.

Supplementary figure 2. QQ plots and Shapiro-Wilk tests of board-certified neurologist density per 100,000, proportion of older adults, and prevalence of each disease per 100,000.

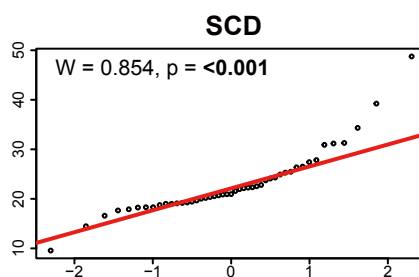
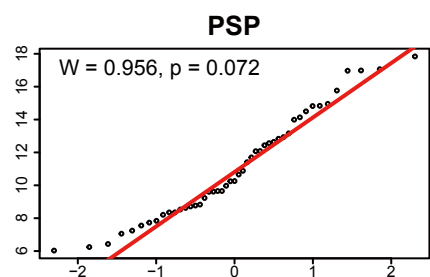
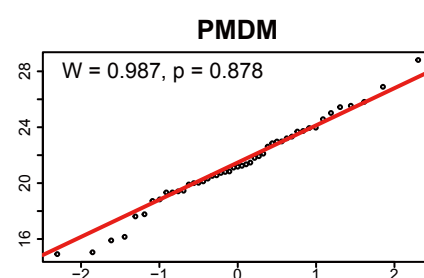
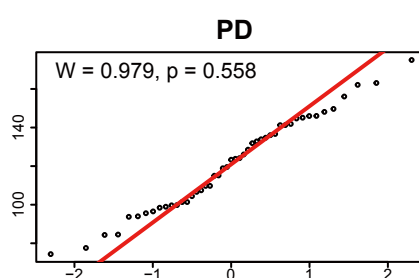
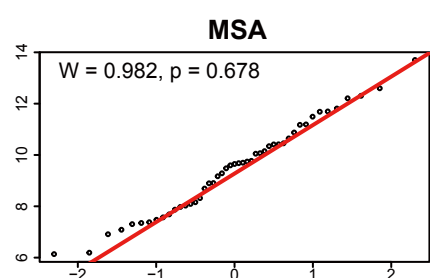
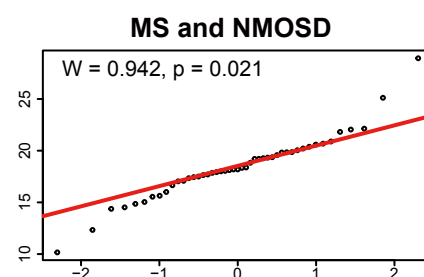
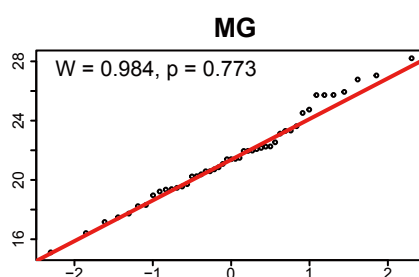
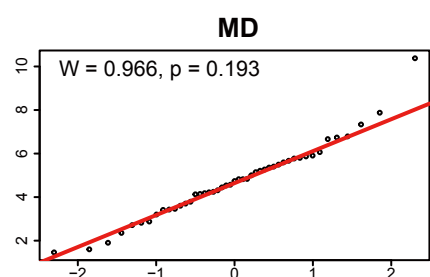
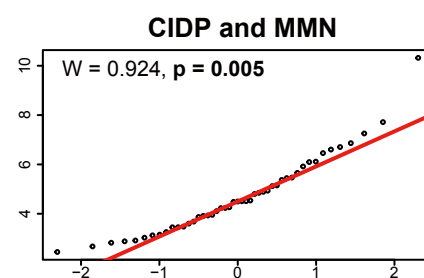
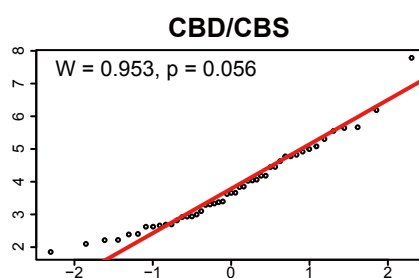
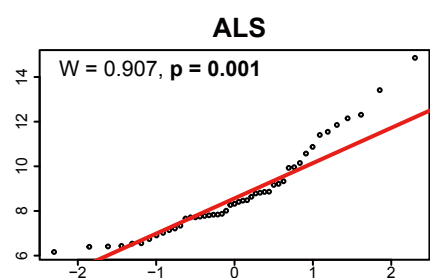
A. Board-certified neurologist density per 100,000.

B. Proportion of older adults over 65 years.



C. Prevalence of each disease per 100,000.

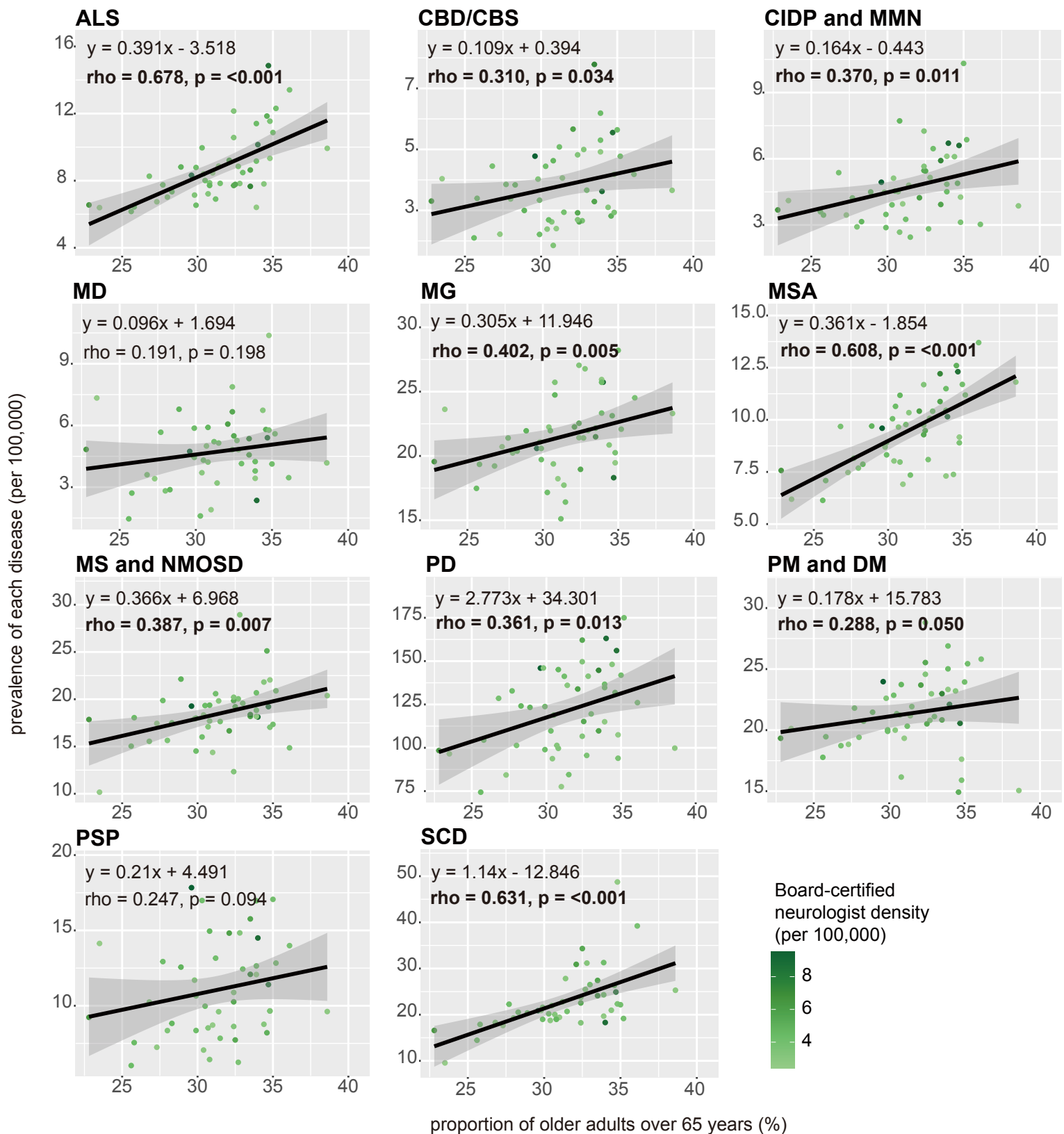
Sample Quantiles



Theoretical Quantiles

QQ plots and Shapiro-wilk tests of board-certified neurologist density (A), proportion of older adults (B), prevalence for each neurological disorder (C). QQ plots compare the quantiles of the sample data (y-axis) with the theoretical quantiles of a normal distribution (x-axis). The black points represent the observed quantiles, and the red line indicates the expected quantiles under a normal distribution.

Supplementary Figure 3. Association between the prevalence and proportion of older adults.



Scatter plots separately illustrate the prevalence in relation to the proportion of older adults for each prefecture. Each point represents a prefecture. The solid lines represent the fitted linear regression lines (with those equations shown), and the shaded areas indicate the 95% confidence intervals of the regressions. Spearman's rank correlation coefficients (ρ) and p values were calculated.

Supplementary Table 1. Number of patients and prevalence by prefecture of each neurological disease.

Disease	Number of patients	Prevalence (per 100,000) by prefecture: minimum	Prevalence (per 100,000) by prefecture: maximum	Prevalence (per 100,000) by prefecture: median
ALS	9765	6.2	14.9	8.3
CBD/CBS	4428	1.9	7.8	3.7
CIDP and MMN	5291	2.4	10.3	4.5
MD	5444	1.5	10.4	4.7
MG	26387	15.1	28.2	21.4
MSA	10808	6.1	13.7	9.6
MS and NMOSD	23105	10.2	28.9	18.2
PD	143267	74.4	175.0	123.3
PM and DM	26046	14.9	28.8	21.2
PSP	12830	6.0	17.8	10.3
SCD	26476	9.6	48.7	21.0

Supplementary Table 2. Benjamini-Hochberg procedure to control the false discovery rate.

Disease	p value	rank	Benjamini-Hochberg adjusted p value (before monotonic correction)	q value (Benjamini-Hochberg adjusted p value after monotonic correction)
MSA	0.001	1	0.011	0.011
PD	0.002	2	0.011	0.011
PSP	0.038	3	0.139	0.139
CBD/CBS	0.119	4	0.327	0.262
SCD	0.119	5	0.262	0.262
ALS	0.265	6	0.486	0.391
PM and DM	0.273	7	0.429	0.391
MS and NMOSD	0.293	8	0.403	0.391
CIDP and MMN	0.32	9	0.391	0.391
MD	0.414	10	0.455	0.455
MG	0.929	11	0.929	0.929