

# Regarding: High Correlations Among Worldwide Prevalences of Dementias, Parkinson's Disease, Multiple Sclerosis and Motor Neuron Diseases Indicate Common Causative Factors

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Dear Editor,

I read the analysis of Worldwide Prevalences of Dementias, Parkinson's Disease (PD), Multiple Sclerosis (MS) and Motor Neuron Diseases by James and Georgopoulos with great interest.<sup>1</sup> This kind of epidemiological analysis is of great importance in our common quest to elucidate the causes and mechanisms of neurological diseases.<sup>2</sup> These endeavours are all the more importance as populations age making neurodegenerative disorders increasingly common.<sup>3</sup>

However, more granular data may show previous country-level analyses inadequate.<sup>4</sup> Indeed, for example in Finland the areas with high occurrence of PD, MS and Amyotrophic Lateral Sclerosis (ALS) are clearly separate: PD is most common in the middle parts of the country, with a belt of high PD incidence going across 'the waist' of Finland whereas MS is most common in a single Bothnian region and the southwest while ALS is most commonly found in the southeastern parts of the country.<sup>5-8</sup> Unfortunately, no current studies on the incidence and prevalence of dementia in Finland are available. There are also marked regional differences in MS epidemiology in Norway and these do not seem to have a clear correlation with ALS rates in the country.<sup>9-12</sup> On the other hand, Scotland's 12 administrative regions have comparable ALS incidence whereas MS incidence shows a Southeast-Northwest gradient.<sup>13,14</sup>

It therefore seems that the conclusion concerning putative common causative factors may have been premature since regional data would be expected to show these even more clearly than country-level data. Indeed, it should also be noted that the genetic background and the effect of many already identified environmental risk factors differs between these disorders, the most obvious probably being the discrepancy between AD, MS and the smoking paradox of PD.<sup>15</sup> The mechanisms behind these disorders are therefore also likely to differ considerably. Identifying their causes requires long-term, granular epidemiological data and direct comparisons between regions.<sup>2</sup>

## Author Contribution

Jussi OT Sipilä contributed to this paper.

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