

Observations of the lifestyle factors of people with Multiple Sclerosis in Sheffield



Gavin Brittain

contact: gavin.brittain@sheffield.ac.uk

Sheffield Institute for Translational Neuroscience, The University of Sheffield and the Department of Neurology and Sheffield NIHR Neuroscience BRC, Sheffield Teaching Hospitals NHS Foundation Trust.

1 BACKGROUND

Living healthily is important for everyone, particularly for people with Multiple Sclerosis (pwMS).

Smoking

The relative risk of a Multiple Sclerosis (MS) diagnosis is 50% higher for smokers than for non-smokers (1). Even passive smoking increases the risk of an MS diagnosis (2).

Stopping smoking appears to show a reduction to the same level of risk of those who have never smoked (3).

For pwMS who continue to smoke there is an increased risk of a higher disability level (4), an increased risk of conversion from RRMS to SPMS (5) and increased risk in MRI brain lesions and atrophy (6,7,8) compared to those who stopped smoking.

Whilst seemingly a useful smoking cessation tool, the effects of the long term use of vaping on MS are unknown.

Activity, diet and weight

When conducted safely, being active improves muscle strength, exercise tolerance, mood and mobility without clear drawbacks (9).

Despite this, pwMS tend to do less vigorous activity and, as MS progresses, less physical activity over time (10, 11).

Obesity in young adulthood appears to increase the risk of developing MS (12), and of higher disability levels at diagnosis, and of progression of disability over time (13).

There is no particular link between specific diets and disease severity or progression, with a balanced diet appearing the most appropriate lifestyle choice (14).

There is no link between alcohol consumption and the development of MS, and minimal research regarding disease severity or progression (15). There is a suggestion it may attenuate the risk of smoking on progression. pwMS should follow UK guidelines of less than 14 units per week with consumption spread over more than 2 days.

2 METHODOLOGY

Observations were pooled from the ongoing Mobilise-D (ISRCTN number 12051706, www.mobilise-d.eu) study where 600 adult pwMS, with an expanded disability status scale score of 3.0-6.5, disability worsening over the previous 2 years and a 30-day freedom from relapses, have been recruited across four European centres (Sheffield, Milan, Kiel and Erlangen). Lifestyle factors are compared to those from the Office for National Statistics describing the combined MS and non-MS population regardless of disease presence (16, 17).

Statistics were performed in R, using a chi-squared test, ANOVA, with posthoc Tukey test, or Kruskal-Wallis chi-squared test, as appropriate, significance set at a p values <0.05. Ever smokers describe patients who are current or previous smokers.

"I don't know how to access local support networks"

300 pwMS from Sheffield (n= 300) were compared to pwMS from Italy (n = 239) and Germany (n = 62). There was a mean age of 52.3, 367 (61.2%) are female, of which 300 (50%) have relapsing remitting MS, 208 (34.7%) secondary progressive MS and 92 (15.3%) primary progressive MS.

Fig. 1: Current smoking status by location; lighter colours indicate ex smokers, darker colours indicate current smokers

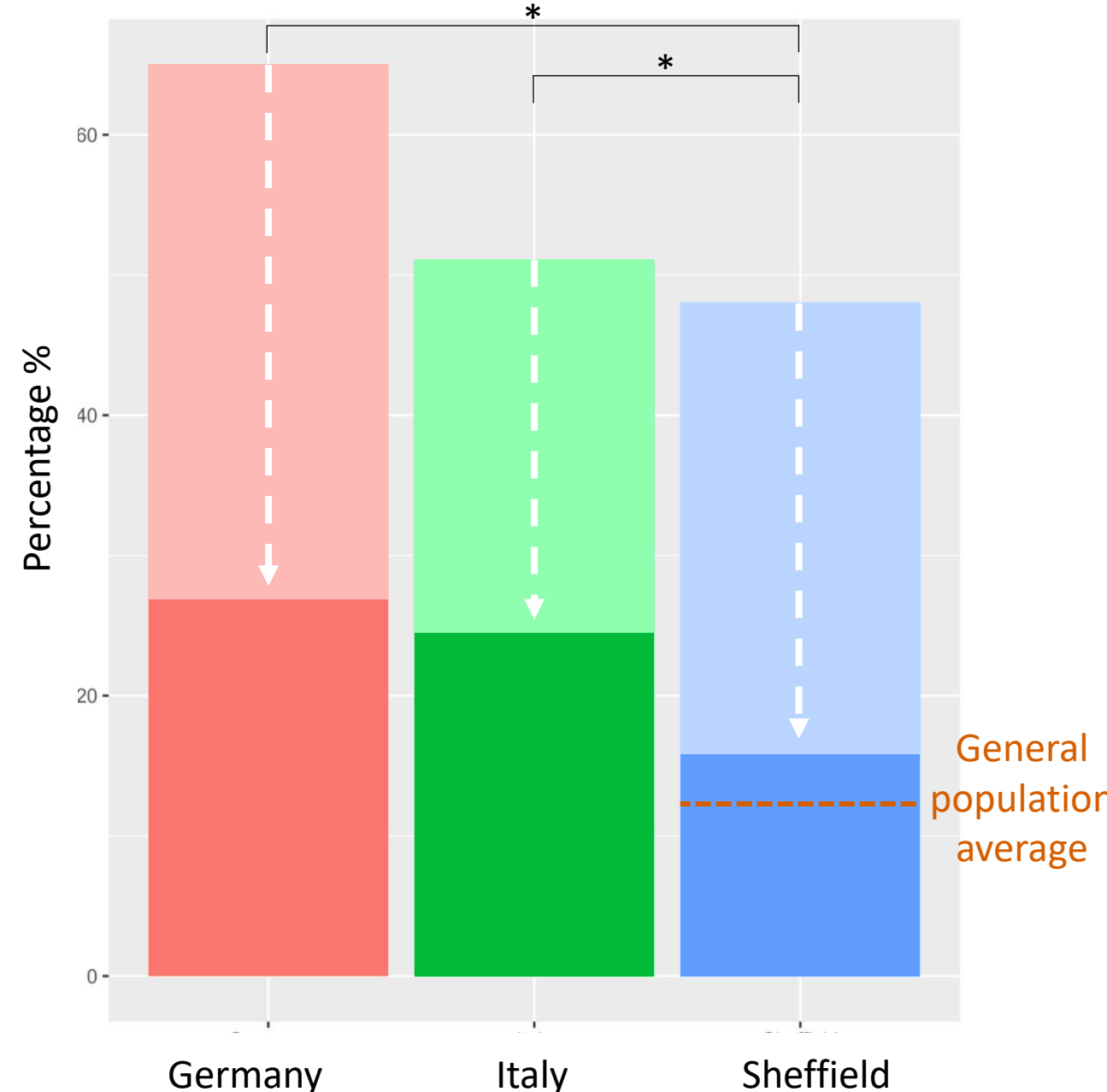


Fig. 2: Alcohol consumption by location

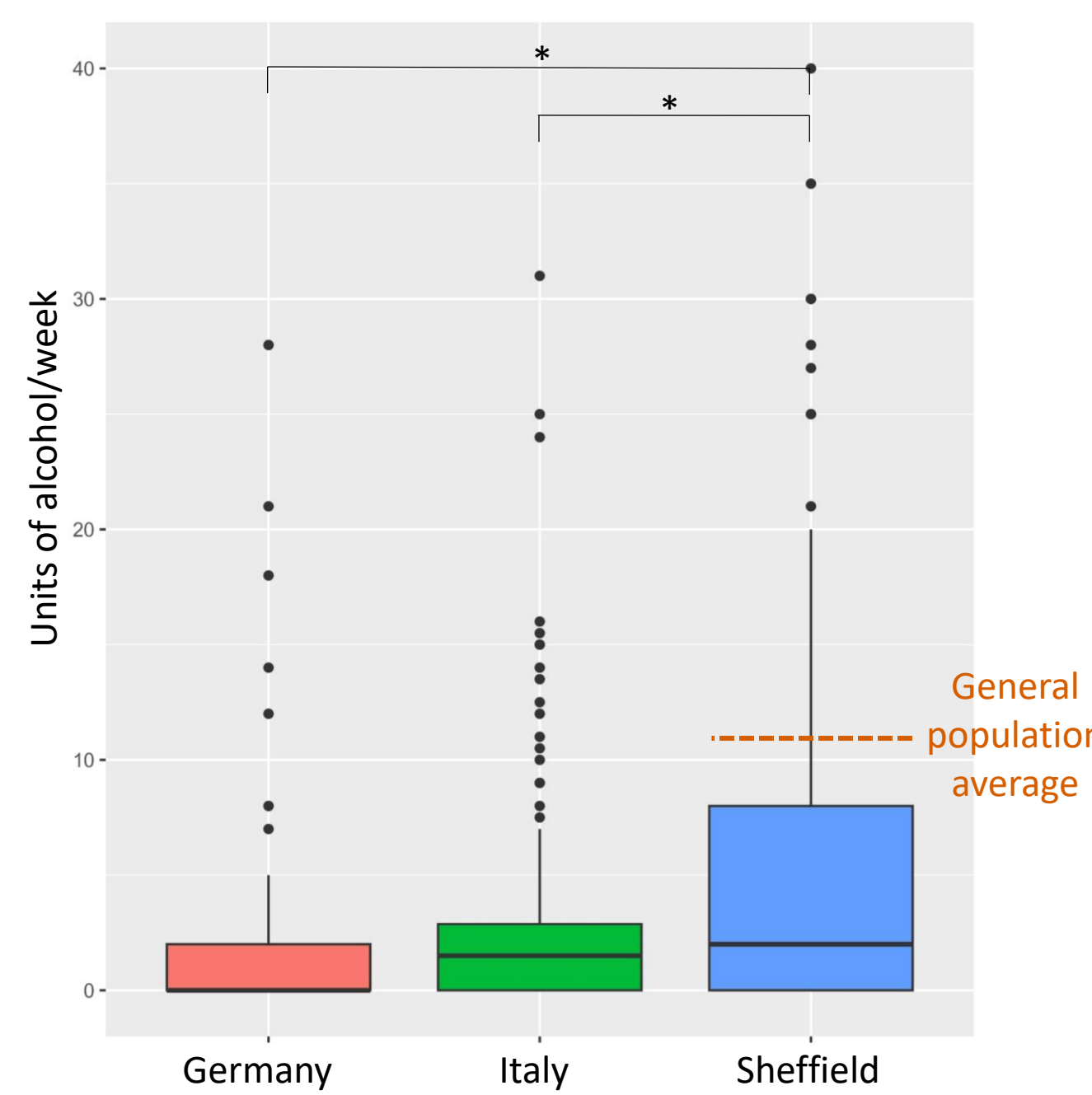
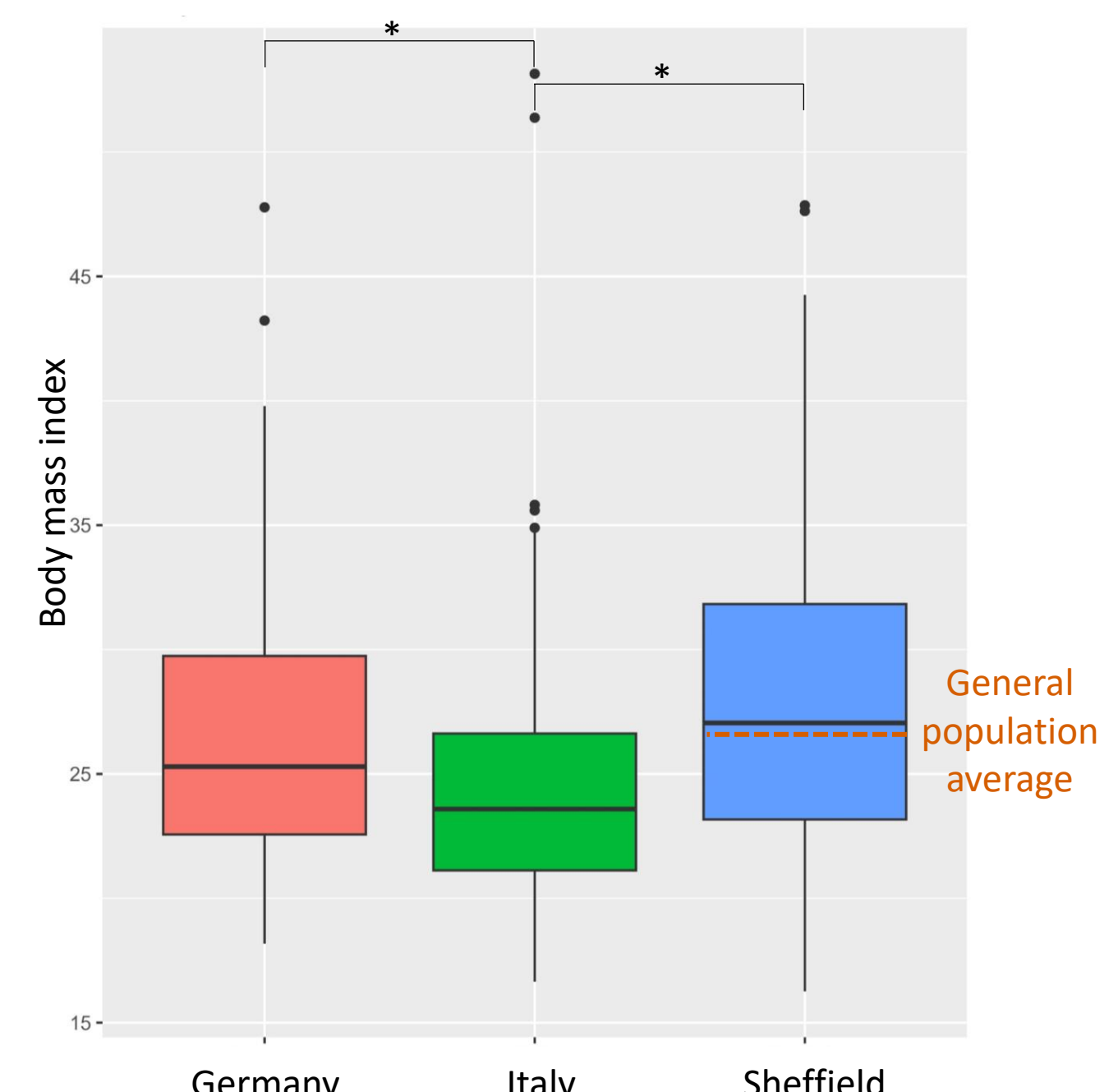


Fig. 3: Body mass index by location



Smoking

Improvements in the number of patients stopping smoking have been seen across Europe with numbers of ever smokers compared to current smokers indicating the decline; 48% to 16% in Sheffield, 51% to 24% in Italy and 66% to 27% in Germany. Whilst statistically less pwMS smoke in Sheffield compared to elsewhere, **more pwMS smoke in Sheffield than the average for the population of England (13%)** indicating a potential failure for pwMS in Sheffield to stop smoking over and above that of the general population despite the known additional risks.

Similarly the percentage of pwMS who smoke or vape is lower in Sheffield (23%) than in Italy (25%) or Germany (28%) but there are more pwMS who vape in Sheffield than elsewhere, mirroring the rising trend seen across the general UK population.

Alcohol

The mean units/week of all pwMS in Sheffield and just those who report alcohol consumption (5.1 and 8.7 respectively) is higher than elsewhere in Europe (Italy; 2.4 and 4.3, Germany; 2.5 and 7.0, respectively) with the Sheffield population of pwMS being statistically significantly higher. These reported figures are lower than the general UK population at 11.6 units. A higher proportion of pwMS (10.4%) consume over 14 units of alcohol/week than in Italy (3.3%) or Germany (4.8%) but this is lower than the general UK population at 21%. This indicates that **pwMS in Sheffield drink more alcohol than pwMS in Europe but consume less than the general UK population.**

BMI

The mean BMI for pwMS in Sheffield was 28.0kg/m² and in Germany was 26.6kg/m², which are both statistically significantly higher than Italy at 24.3kg/m². The mean BMI of men in England was 27.5, while the mean BMI for women was 27.2, indicating that **the mean BMI for pwMS is not significantly different to the general UK population.**

4 SERVICE DEVELOPMENT

Effective patient education is the cornerstone to ensuring healthier lifestyle choices. A review of the Sheffield Teaching Hospitals MS care service website and educational literature regarding lifestyle modification for pwMS showed a lack of documented guidance and signposting to local support networks and self-help resources.

An overhaul of a patient facing leaflet regarding lifestyle choices and the MS care service website is underway with a plan to engage stakeholders thereafter.

Acknowledgements and references

The data pertaining to the MS patients was collected by the Multiple Sclerosis Clinical Validation Study team of the Mobilise-D project (ISRCTN number 12051706). A project that has received funding from the Innovative Medicines Initiative 2 Joint Undertaking (IU) under grant agreement No. 820820. Content in this poster reflects the authors' view rather than Mobilise-D, their partners or funders.

1) Poorolajal J, et al. Effect of smoking on multiple sclerosis: a meta-analysis. J Public Health (Oxf). 2016. 2) Hedström AK, et al. Exposure to environmental tobacco smoke is associated with increased risk for multiple sclerosis. Mult Scler. 2011. 3) Hernán MA, et al. Cigarette smoking and the progression of multiple sclerosis. Brain. 2005. 4) Heydarpour P, et al. Smoking and worsening disability in multiple sclerosis: A meta-analysis. Acta Neurol Scand. 2018. 5) Degelman ML, et al. Smoking and multiple sclerosis: A systematic review and meta-analysis using the Bradford Hill criteria for causation. Mult Scler Relat Disord. 2017. 6) Arikanglu A, et al. Impact of cigarette smoking on conversion from clinically isolated syndrome to clinically definite multiple sclerosis. Int J Neurosci. 2013. 7) Horakova D, et al. Environmental factors associated with disease progression after the first demyelinating event: results from the multi-center SET study. PLoS One. 2013. 8) Zivadinov R, et al. Smoking is associated with increased lesion volumes and brain atrophy in multiple sclerosis. Neurology. 2009. 9) Rietberg MB, et al. Exercise therapy for multiple sclerosis. Cochrane Database Syst Rev. 2005. 10) Motl, R. W. et al. Descriptive epidemiology of physical activity rates in multiple sclerosis. Acta Neurol Scand. 2015. 11) Rachel E Klaren, et al. Patterns and Predictors of Change in Moderate-to-Vigorous Physical Activity Over Time in Multiple Sclerosis. J Phys Act Health. 2017. 12) Gianfrancesco MA, et al. Obesity and Multiple Sclerosis Susceptibility: A Review. J Neurol Neurosurg. 2016. 13) Lutfullin I, et al. Association of obesity with disease outcome in multiple sclerosis. Journal of Neurology, Neurosurgery & Psychiatry. 2023. 14) Stoiloudis P, et al. The Role of Diet and Interventions on Multiple Sclerosis: A Review. Nutrients. 2022. 15) Ivashynka A, et al. The Impact of Lifetime Alcohol and Cigarette Smoking Loads on Multiple Sclerosis Severity. Front. Neurol. 2019. 16) "Ministers aim to halve number of people smoking by 2020". BBC News. 1 February 2010. Accessed 27/10/2023. 17) Office for National Statistics (ONS), 2021, ONS website. Accessed 27/10/2023.