

Spatial variations in dietary fibre intake among women in England from the UK Women's Cohort Study

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Despite regional variations in health patterns throughout the United Kingdom⁽¹⁾ and recognition that some health inequalities are linked to inequalities in nutrition⁽²⁾, there is relatively little evidence about small scale geographical differences in diet. The UK Women's Cohort Study⁽³⁾ provides an opportunity to explore such differences as it contains both dietary and geographic data. Fibre in the diet is associated with health benefits including a reduced risk of coronary heart disease⁽⁴⁾, some cancers^(5,6) and type 2 diabetes mellitus⁽⁷⁾. This study considers whether there are regional variations in dietary fibre intake among women in England contributing to differences in diet.

Dietary fibre intake by fraction (total fibre, soluble fibre and insoluble fibre) and by English region of residence was explored using mapping techniques. The relationship between total dietary fibre intakes and region of residence was investigated using ordinary least squares regression modelling.

Choropleth maps indicated spatial variations in mean intakes of each fibre fraction. Regression modelling showed a small positive, significant difference in total fibre intake for the North East, the East Midlands and the South West, compared to Yorkshire and the Humber, the region with mean total fibre intakes closest to the mean for the whole sample (26.2 g/day).

Independent Variable: Region of Residence	Dependent variable: Total fibre intake (g/day)		
	Multivariate Model, <i>n</i> = 23182		
	Regression Coefficient	95% CI	<i>p</i> value
Yorkshire and the Humber	ref		
North East	0.76	0.16 to 1.35	0.01
North West	-0.19	-0.62 to 0.23	0.38
East Midlands	0.51	0.06 to 0.96	0.03
West Midlands	0.09	-0.36 to 0.54	0.70
East of England	0.20	-0.23 to 0.63	0.36
Greater London	-0.34	-0.75 to 0.08	0.11
South East	0.32	-0.06 to 0.69	0.10
South West	0.78	0.38 to 1.18	<0.01
Proportion of variance explained by the model, R ²	0.5349		

Multivariate Model adjusted for age, sweaty activity, alcohol intake, energy intake, quintile of index of multiple deprivation, smoking status, dietary pattern and marital status.

The study shows that there are spatial variations in women's dietary fibre consumption throughout England among the UK Women's Cohort Study. Although small, these differences in dietary fibre intake between the regions may be important for health outcomes.

1. NCIN Cancer eAtlas 2011 http://www.ncin.org.uk/cancer_information_tools/eatlas/default.aspx. (accessed June 2012).
2. Smith GD, Brunner E. (1997) *Proc Nutr Soc* 56(1A):75–90.
3. Cade JE, Burley VJ, Greenwood DC *et al.* (2004) *Public Health Nutr* 7(7):871–8.
4. Liu SM, Stampfer MJ, Hu FB *et al.* (1999) *Am J Clin Nutr* 70(3):412–9.
5. Cade JE, Burley VJ, Greenwood DC *et al.* (2007) *Int J Epidemiol* 36(2):431–8.
6. Aune D, Chan DSM, Lau R *et al.* (2011) *Br Med J* 343:d6617.
7. Montonen J, Knekt P, Jarvinen R *et al.* (2003) *Am J Clin Nutr* 77(3):622–9.