

Is the UK diet sustainable? Assessing the environmental impact, cost and nutritional quality of household food purchases

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The Food and Agriculture Organization (FAO)⁽¹⁾ have defined sustainable diets as “those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources.” The aim of the work was to determine the cost and environmental impact of UK diets of varying nutritional qualities.

Food purchase data for 2012 and 2013 combined, from the UK Living Costs and Food Survey, detailing food weights and costs, were mapped to the environmental variables of Greenhouse Gas Emissions (GHGE) (estimated for primary production, processing, transport and cooking of the individual food commodities and composite foods) and Land Use⁽²⁾. Following removal of households whose purchase patterns were unlikely to sustain them for the 2 weeks of data collection, a Diet Quality Index (DQI) developed in collaboration with Food Standards Scotland^{(3),(4)} and based on dietary guidelines was assigned to each household in the survey. The DQI was standardised per household member by assuming an average energy intake of 2000 kcal/day. Median GHGE, land use and food expenditure per household member for the two week recording period were compared across the quintiles of DQI score.

Quintiles DQI % score	1 (5.50–26.51)		5 (51.74–99.83)		P
	Median	IQR	Median	IQR	
GHGE (kg CO ₂ e)	50.0	38.6–67.7	47.9	37.2–61.9	0.001
Land use (m ²)	55.1	41.5–74.1	50.2	38.5–64.9	<0.001
Expenditure (£)	85.96	61.58–122.69	82.12	58.59–116.38	0.014

P values for comparisons using Mann-Whitney test.

The distribution for the DQI was highly skewed with those in the bottom 4 quintiles having DQI scores below 52 % demonstrating the poor quality of the UK diet. Median GHGE, land use and expenditure were significantly lower in those in the top quintile compared to the bottom quintile but there was also an indicative trend of lower GHGE and lower land use as DQI increased. This work challenges conclusions of previous work which suggests healthy diets are more expensive⁽⁵⁾. Further exploration is needed to determine realistic and acceptable dietary patterns that are at the same time nutritious, affordable and environmentally sustainable.

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