Do inequities in neighbourhood food environments contribute to inequalities in diet and health?

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The Streets are coloured according to the general condition of the inhabitants, as under:

- Lowest class. Vicious, semi-criminal.
- Very poor, casual. Chronic want.
- Poor. 18s. to 21s. a week for a moderate family.
- Mixed. Some comfortable, others poor.
- Fairly comfortable. Good ordinary earnings.
- Middle-class. Well-to-do.
- Upper-middle and Upper classes. Wealthy.

A combination of colours— as dark blue and black, or pink and red— indicates that the street contains a fair proportion of each of the classes represented by the respective colours.
Social determinants of health
Social determinants of health

Then

Now
Socioeconomic patterning of obesity

Gradients in obesity prevalence in English adults

**Income & Obesity**

- *men*
- *women*

**Education & Obesity**

- No qualifications
- GSCEs
- A-level
- Degree

*Health Survey for England, 2011, Vol 1, Chapters, 2, 4, 10*
Socioeconomic patterning of chronic disease

Gradients in disease prevalence in English adults

Income & Cardiovascular Disease

Income & Diabetes

Prevalence of any CVD

Income & Diabetes

Prevalence of Diabetes

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Health Survey for England, 2011, Vol 1, Chapters, 2, 4, 10
Socioeconomic patterning of diet

Meeting F/V targets linked to household income

Health Survey for England,
Public Health England 2013
Socioeconomic patterning of diet

Gradients in dietary intakes of British adults
National Diet and Nutrition Survey

Analyses of NDNS Years 1-3, Means, 95% CIs adjusted for age, sex, race, survey year and total energy intake

from Maguire, Monsivais, BJN 2014
Socioeconomic pathways to health

Low SEP → unhealthy environment → unhealthy behaviours → obesity and chronic disease
Socioeconomic pathways to diet and obesity

from Pearce et al., 2007
Socioeconomic pathways to diet and obesity

How does physical access to food outlets influence diet and weight?

Low SEP → unhealthy food environment → unhealthy diet → obesity and chronic disease risk
Unequal neighbourhoods

Socioeconomic differences in the number of fast food outlets

![Map of England showing the number of fast food outlets per 100,000 population, with darker shades indicating higher numbers.](image)

**Fast food outlets**
- by local authority per 100,000 population
- England value per 100,000 population: 77.9

![Scatter plot showing the relationship between Index of Multiple Deprivation (IMD) 2010 and fast food outlets per 100,000 population.](image)

**Index of Multiple Deprivation (IMD) 2010**
- (higher score = more deprived)

**Fast food outlets per 100,000 population**
- 0 to 51
- 52 to 63
- 64 to 76
- 77 to 90
- 91 to 173

Low SEP → unhealthy food environment

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National Obesity Observatory, 2012
Unequal neighbourhoods

Time trends in the number of fast food outlets, Norfolk, UK

Mean takeaway outlets/10,000 persons

Year

Overall average
Unequal neighbourhoods

Time trends in the number of fast food outlets, Norfolk, UK

Year

Mean takeaway outlets/10,000 persons

Low SEP → unhealthy food environment

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Maguire, Burgoine, Monsivais, Health and Place 2015
Unequal neighbourhoods

Low SEP → unhealthy food environment

unhealthy food environment → unhealthy diet

Number of takeaways

Socioeconomic Position

Unhealthy diet, Obesity

Number of takeaways
Neighbourhood determinants of diet and weight

Measuring food environments

Adapted from Burgoine, Monsivais. Int J Behav Nutr Phys Act. 2013
Takeaways, diet and weight

Means, 95% CIs adjusted for age, sex, educational attainment, household income, energy intake (for diet) smoking and physical activity (for BMI) commuting distance (km), and supermarket access N=5442

from Burgoyne, Forouhi, Griffin, Wareham, Monsivais. BMJ 2014
Food environments and diet

Is it the same for everyone?
Food environments and diet

Is it the same for everyone?

Overall Results

Quartiles of Takeaway Food Exposure

Means, 95% CIs adjusted for age, sex, energy intake, education, household income and supermarket availability.

Adapted from Burgoine et al., 2014.

and results by education level

Quartiles of Takeaway Food Exposure

Means, 95% CIs adjusted for age, sex, energy intake, household income, supermarket availability. * indicates significantly different from other groups at p<0.05

Adapted from Burgoine et al., 2016.
Public health intervention

Reducing proliferation of takeaways

3. Regulatory and planning measures should be used to address the proliferation of hot food takeaway outlets. We recommend that local authorities utilise to the best of their ability existing regulatory...
Public health intervention

Reducing proliferation of takeaways

Policy 4

In order to avoid an over concentration of hot food takeaways (A5), within the Centre Boundary of Town, District and Neighbourhood Centres, no more than 10% of units within the centre or frontage shall consist of hot food takeaways. Applications for a change of use to A5 within the centre will normally be refused where this figure has been or will be, exceeded.

In considering applications for A5 uses account will also be taken of other factors including the type and characteristics of other uses in proximity to the application site, the size and type of unit, and the proximity of the site to dwelling houses.

As of mid 2014, 36 applications for opening takeaways were made, with 15 refused.
Providing evidence to support policy

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Summary and Conclusion

- Socioeconomic disadvantage: unhealthy food environment
- Neighbourhood food environments have a measurable impact on diet and obesity
- Unhealthy food environments may be worse for socioeconomically disadvantaged populations
- Tackling unhealthy food environments could produce population benefits to health and reduce inequalities
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