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“Food deserts”—evidence and assumption in health policy making

Steven Cummins, Sally Macintyre

Assertions can be reported so often that they are considered true (“factoids”). They may sometimes even be used to determine health policy when empirical information is lacking. Steven Cummins and Sally Macintyre use the claimed existence of “food deserts”—poor urban areas where residents cannot buy affordable, healthy food—to illustrate why policy makers need to look more critically at the facts

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In December 2001 a cross party motion on food poverty signed by 198 UK MPs gained its first reading in parliament. The Food Poverty (Eradication) Bill is now waiting to be read for a second time.¹ Though this bill is a laudable attempt to introduce a policy designed to improve the nutrition of those with the lowest incomes and in the poorest places, it is an example of how some ideas become accepted as fact though they may not be true. They become “factoids”: assumptions or speculations reported and repeated so often that they are popularly considered true; they are simulated or imagined facts.² This paper illustrates how, if the social climate is right, facts about the social world can be assumed and hence used as the basis for health policy in the absence of much empirical information.

The bill

The bill's provisions require the secretary of state to publish and implement a strategy for abolishing food poverty and to set targets for implementing that strategy. In presenting the bill to parliament, Alan Simpson, MP, stated: “Whatever collection of ideas we pursue, we will have to consider incentives for dealing with places in almost all our cities and communities that have become food deserts where one cannot find fresh food outlets that are accessible to the food poor.”³ His statement suggests that a well established body of evidence supports his assertion and that it applies across the United Kingdom.

What is a “food desert”?

The term “food desert” was reputedly first used by a resident of a public sector housing scheme in the west of Scotland in the early 1990s. It first appeared in a government publication in a 1995 document from a policy working group of the Low Income Project Team of the then Conservative government's Nutrition Task Force.⁴ The term has been used increasingly by academics, policy makers, and community groups to describe populated urban areas where residents do not have access to an affordable and healthy diet.⁵ Government reports have said that food deserts may damage public health by restricting the availability and affordability of foods that may benefit health.^{6,7} These reports have influenced several policy recommendations designed to promote adequate retail provision of food for those with a low income or who live in poor neighbourhoods. The reports have aimed to identify best practice and innovative approaches to improving shopping access in such neighbourhoods.

Summary points

Factoids are assumptions or speculations reported and repeated until they are considered true

They are sometimes used to determine health policy when empirical information is lacking

The assumption that in the United Kingdom there are poor urban areas where residents cannot buy affordable, healthy food (“food deserts”) is a factoid

Policy strategies to combat the existence of food deserts exemplify how factoids can influence health and social policy

The burden of proof, or demand for evidence, may vary according to a policy's perceived fit within current collective world views

Policy makers need to move away from unquestioning acceptance and should look at the facts more critically

During a speech in September 1998 to launch the publication of the *Independent Inquiry into Inequalities in Health*,⁷ Donald Acheson (chairman of the inquiry) used food deserts as an example of a mechanism by which poverty and social inequality could cause poor health. This appeared in the national press, which reported that millions of households were undernourished because they did not have the opportunity to make healthy food choices.⁸ Residents of poor communities have blamed the lack of supermarkets in their areas as the main reason for not being able to eat more healthily.⁹ Popularly, therefore, the major food retailers are held partly responsible for the emergence of food deserts—for not establishing shops in poor communities and so denying residents the benefits of choice and a good price.

Does the evidence match the policy response?

How far does cited evidence in the government's documents mentioned above match their policy responses? Three main UK studies are frequently cited in this field: Mooney, Piachaud et al, and Sooman

et al.¹⁰⁻¹² Acheson's report referred to the first two of these studies to support the statement that there is "a paradox that a healthy basket of food has been found to cost more in disadvantaged areas than in affluent areas . . . [This] has led to the creation of 'food deserts.'"⁷ On closer examination of the primary data reported by Mooney, a different picture emerges.

Table 1 reproduces the original data from Mooney's 1990 paper, which was based on research in Hampstead, London. The data in this table have been used by the independent inquiry paper⁷ (as well as by other authors) as evidence that food deserts exist in the United Kingdom. The recommendations in Acheson's report, however, cannot be supported by the strength of this evidence alone. The table, based on food prices in nine supermarkets, shows that though a basket of healthy goods costs more than a basket of unhealthy goods both in a deprived and in an affluent area, both the healthy and unhealthy baskets are cheaper in the deprived area than in the affluent area. We have never seen this point referred to in citations of this work, which is usually cited as evidence that food is more expensive in poorer areas.^{13 14}

The paper by Piachaud et al does not discuss or describe the existence of food deserts.¹¹ It shows that the type and size of shop is important in determining the price and availability of food and that small shops generally have a smaller range and are more expensive. It does not compare rich and poor areas—only different areas of the United Kingdom.

Another paper widely cited in the academic literature, though not by Acheson's report or by the 1998 report by the government's Social Exclusion Unit⁶, was a small exploratory study in Glasgow by Sooman et al.¹² In 1992 it examined the price and availability of a basket of more and less healthy foods in 10 stores in both a more and a less deprived area. The researchers found that healthy food cost more in a poorer area than in a more affluent area but that the relative difference in cost between healthy food and unhealthy food was smaller in the more affluent area. The stores were not a systematic or random sample, and no significance tests were done to compare the two localities because the authors (including one of us, SM) regarded this as a pilot study with insufficient power to detect differences between the areas. This study has been uncritically cited, however, in the United Kingdom and the United States as showing that healthy food is more expensive and less available in more deprived areas.¹⁵⁻¹⁷

The Social Exclusion Unit's report gave no supporting evidence for the assertion that some urban areas of the United Kingdom had become food deserts.⁶ Although the report cited a study that said that unhealthy food was generally less expensive than healthy food, it did not cite evidence that food systematically costs more in deprived areas.

Bad science or bad interpretation?

We are not suggesting that primary research (such as the three papers described above) is based on bad science or that the authors have made exaggerated claims about the significance of their work. We are suggesting that food deserts are an "idea whose time has come,"

and that somewhat slender empirical evidence has been used (sometimes erroneously, as in the interpretation of Mooney's work) to support the idea that food deserts are widespread. Primary research can easily be overinterpreted to suit the needs of individuals or groups, and subsequently be cited in journals, at seminars, and in the media without close reference to the original source material. If these three studies had concerned an issue not so eagerly espoused by many in central and local government and public health, and by the public too, and if the issue had been more contentious—for example, if they had argued in support of risks associated with the measles, mumps, and rubella (MMR) vaccine or that HIV is not the causative agent in AIDS—we suspect that the studies would have been more critically appraised, with demands for replication, larger sample sizes, and more robust designs.

As Macintyre et al have noted, a plausible and attractive theory with seemingly straightforward solutions is not a sufficient basis on which to make policy.¹⁸ Big "multiple" stores have economies of scale that allow them to stock at reasonable prices a wide range of products—including foods that are currently recommended in dietary guidelines. In a recent study in Glasgow we found that big multiple stores were more likely to be located in or near deprived areas; we also found that a range of 57 basic food items was either similar in price or cheaper in more deprived areas than in more affluent areas.^{5 19}

Recent trends in the food retail economy may mean that many small and large multiple stores are increasingly moving back into city centres and local sites closer to relatively deprived populations.^{5 19 20} Market forces may therefore already be producing the better availability that the bill seeks. However, we believe this to be an empirical question, not one about which assumptions can be made either way, however plausible they may seem.

A forthcoming special issue of the journal *Urban Studies* advocates improving research methods to achieve a more scientific approach to measuring people's access to food.²¹ In addition, the editorial in that special issue raises some important points about the assumption—despite a lack of empirical evidence—that food deserts existed throughout the 1990s.²² The author notes that the term food deserts became convenient shorthand for a complex problem. He suggests that it should not be surprising therefore to find that, when research did begin to explore the issue in greater depth, government departments developed different policies. For example, the recent report on supermarkets by the Competition Commission (set up by the secretary of state for trade and industry) concluded that little evidence existed across the United

Comparison of mean (standard deviation) cost (£) of basket of healthy food and unhealthy food in Hampstead, London (entire district, deprived areas, and affluent areas). Adapted from Mooney¹⁰

Area (No of shops)	Healthy basket	Unhealthy basket	Difference (%)
Entire district (9)	11.51 (0.91)	9.72 (1.18)	18**
Deprived area (5)	11.13 (0.43)	9.23 (0.40)	F21***
Affluent area (4)	11.98 (1.11)	10.32 (1.50)	17*

£1=\$1.5; €1.6.

*P<0.05; **P<0.01, ***P<0.001.



PASCAL MENDARD/PHOTONICA

Supermarkets are often held responsible for lack of access to affordable healthy food in poor urban areas, but evidence may not support this

Kingdom of significantly poorer access in poor urban areas to the retail outlets of the large multiple food retailers.²⁰ This finding was in marked contrast to the findings of the Social Exclusion Unit and Acheson's report.^{6, 7}

Recent papers have suggested that when health policy or interventions are formulated to reduce inequalities in health, there is confusion about what "works" and what sort of evidence is useful. This confusion exists despite an ever increasing wealth of data on health inequalities and how they arise.^{18, 23} Similarly, ambivalence exists about applying the principles of evidence based medicine to social or public health policies and about considering ways in which this "evidence gap" could be narrowed.²⁴

Conclusion

The overinterpretation of a few small scale studies undertaken up to 10 years ago could end up being used to make policy decisions supported by major central government groups and agencies, because the findings are understood to fit in with the current way of thinking. We are not suggesting that food deserts do not exist in the United Kingdom or elsewhere—although recent work still produces conflicting results.^{5, 17, 19, 20} Rather, we have raised important questions about how evidence in public health is produced, interpreted, and reproduced when making health policy.

This paper illustrates how factoids can easily and uncritically become part of the apparatus of government health policy when they fit in with broader policy objectives. The key problem is that the burden of proof, or demand for evidence, may vary according to a policy's perceived fit with the prevailing collective world views about issues of popular topical interest. One of the main messages of the evidence based movement needs to be emphasised: when making any health policy (or other) decisions, we need to move away from an unquestioning acceptance of conventional wisdom and "expert" advice and cast a more critical and objective eye over the facts.

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- 1 Food Poverty (Eradication) Bill. www.joeshort.net/foodjustice/thebill.html (accessed on 7 August 2002).
- 2 Oxford English Dictionary Online. <http://dictionary.oed.com/cgi/entry/00081536> (accessed on 5 February 2002)
- 3 Alan Simpson. *House of Commons official report (Hansard)*. 2001 Dec 12;part 5:column 840.
- 4 Beaumont J, Lang T, Leather S, Mucklow C. *Report from the policy sub-group to the Nutrition Task Force Low Income Project Team of the Department of Health*. Radlett, Hertfordshire: Institute of Grocery Distribution, 1995.
- 5 Cummins S, Macintyre S. The location of food stores in urban areas: a case study in Glasgow. *British Food Journal* 1999;101:545-53.
- 6 Social Exclusion Unit. *Bringing Britain together: a national strategy for neighbourhood renewal*. London: Stationery Office, 1998. (Cm 405.)
- 7 Acheson D. *Independent inquiry into inequalities in health*. London: Stationery Office, 1998.
- 8 Laurence S. The poor of Britain are going hungry, health chief warns. *Independent* 1998 Oct 15.
- 9 Killen D. Food and nutrition. In: Fyfe G, ed. *Poor and paying for it. The price of living on a low income*. Glasgow: Scottish Consumer Council, 1994.
- 10 Mooney C. Cost and availability of healthy food choices in a London health district. *J Hum Nutr Diet* 1990;3:111-20.
- 11 Piachaud D, Webb J. The price of food: missing out on mass consumption. London: Suntory and Toyota International Centres for Economics and Related Disciplines, London School of Economics and Political Science, 1996.
- 12 Sooman A, Macintyre S, Anderson A. Scotland's health—a more difficult challenge for some? The price and availability of healthy foods in socially contrasting localities in the west of Scotland. *Health Bull (Edinb)* 1993;51:276-84.
- 13 Low Income Project Team. *Low Income, food, nutrition and health: strategies for improvement*. London: Nutrition Task Force, Department of Health, 1996.
- 14 Lang T, Caraher M. Access to healthy foods: part 2. Food poverty and shopping deserts: what are the implications for health promotion policy and practice?. *Health Educ J* 1998;57:202-11.
- 15 Davey Smith G, Brunner E. Socio-economic differentials in health: the role of nutrition. *Proceedings of the Nutrition Society* 1997;56:75-90.
- 16 Diez-Roux AV, Nieto FJ, Caulfield L, Tyroler HA, Watson RL, Szklo M. Neighbourhood differences in diet: the atherosclerosis risk in communities (ARIC) study. *J Epidemiol Community Health* 1999;53:55-63.
- 17 Morland K, Wing S, Diez-Roux A, Poole C. Neighbourhood characteristics associated with the location of food stores and food service places. *Am J Prev Med* 2002;22:223-9.
- 18 Macintyre S, Petticrew M. Good intentions and received wisdom are not enough. *J Epidemiol Community Health* 2000;54:802-3.
- 19 Cummins S, Macintyre S. The price and availability of food in Greater Glasgow: a systematic study of an urban foodscape. *Urban Studies* (in press).
- 20 Competition Commission. *Supermarkets: a report on the supply of groceries from multiple stores in the United Kingdom*. London: CC, 2000.
- 21 Clarke G, Eyre H, Guy CM. Deriving indicators of access to food retail provision in British cities: studies of Cardiff, Leeds, and Bradford. *Urban Studies* (in press).
- 22 Wrigley N. Food deserts in British cities: policy context and research priorities. *Urban Studies* (in press).
- 23 Macintyre S, Chalmers I, Horton, Smith R. Using evidence to inform health policy: case study. *BMJ* 2001;322:222-5.
- 24 Davey Smith G, Ebrahim S, Frankel S. How policy informs the evidence. *BMJ* 2001;322:184-5.

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