Nutrition, Physical Activity and Overweight

‘All under one roof?’ differences in food availability and shopping patterns in Southern France and Central England

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Introduction

The system of food provision has a major impact on what people choose to eat¹ and evidently individuals can only choose foods that are available, accessible and affordable to them. Equally, smaller shops only survive if they are used and their demise in the UK has been mourned by some,²,³ not least for their role in ‘holding communities together’. Within Europe there is enormous variability in the determinants of food choice,⁴ particularly between northern and southern countries.⁵ Food availability in Western Europe relates to what is on offer and the process by which food gets to the consumer.⁶ Although change and development in food supply and distribution is paralleled throughout Europe, there remain strong cultural differences between countries in the way that food is produced, distributed and hence made available to consumers. Few cross-cultural studies have been done in this particular area, but identification of the range of physical, economic and political elements involved has been outlined⁷ and one study has recently shown that modernization has enhanced availability of manufactured foods in certain Mediterranean countries.⁸

Studies in the UK have assessed whether a healthy diet is available and accessible to all sections of the community⁹–¹⁵ with some conflicting and inconclusive results. Mapping access to food at a local level¹⁶ has shown that access to healthy food is determined primarily by income¹⁷ and this in turn is closely related to physical access, e.g. to public transport.¹⁸ One study has looked particularly at fruit and vegetables in relation to access and supermarket proximity.¹⁹ Similarly, good quality foods have been shown to be available only in small concentrated shopping areas,²⁰ confirming that small retailers struggle to survive against competition from larger stores.²¹,²²

Describing the food environment is important in the present context of escalating obesity in both France and England, as it is widely recognized that so called ‘obesogenic’ environments may be one of the driving forces behind this.²³ The obesogenicity of an environment has been defined²⁴ as ‘the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations.’ Mapping of food available could therefore be useful in providing baseline information for planning public health interventions.

This current article focuses on a complementary component of a population study,²²,²³ which investigated the psychological, social and cultural influences on food choice between Southern France and Central England, that found substantial differences in attitudes and beliefs to food and health, indicating that the French place great value on the pleasurable and social aspects of eating, cooking from basic ingredients and having more structured meal times, whereas convenience and snacking seem to be important features of English food culture.²²,²³ The studies reported in the current article investigate whether current stereotypes of shopping practices and food availability...
in France and England reflect reality. Availability in this instance is referring to availability of certain foods found within mapped outlets in a defined geographical area in each country. The hypotheses were firstly that respondents in the French population sample use smaller shops more often and the English rely more on the supermarket; secondly from the access mapping survey, in French and English areas, that there are a wider variety of small independent shops in France; availability and quality of fruit and vegetables is better in France; whereas the availability of energy dense snack foods is wider in England.

Methods

Population survey of shopping practices

Cross-sectional population studies were conducted simultaneously in April 2001 using self-administered postal questionnaires. The survey’s objectives included investigation of individuals’ attitudes and beliefs to food and health; patterns of household food consumption; cooking and food preparation; mealtimes and snacking habits; patterns of food shopping. This particular article focuses on the latter of these. A stratified random sample of 1000 males and 1000 females aged 18–65 years was generated from the electoral roll in both England (Nottingham, East Midlands) and France (Montpellier, Languedoc-Roussillon). The final sample comprised England: \( n = 826 \) (58% male and 42% female; mean age 44 years) and France: \( n = 766 \) (42% males and 58% females; mean age 42 years). Personal information was collected on self reported weight and height, from which BMI was calculated to group individuals into four categories and highest qualification achieved was recorded. Respondents were asked to indicate how frequently specific outlets were used for food shopping in their household. A list of 10 locations was provided as follows: large chain supermarkets; smaller local shops; baker; butcher; fishmonger; greengrocer; market; health food shop; delicatessen and the internet. A six-point scale was provided for responses of ‘daily’, ‘2–6 times per week’, ‘at least 1 times per week’, ‘at least 1 times per month’, ‘less often than 1 times per month’ and ‘never’. The shopping outlets were selected taking account of both French and English traditions.

Food availability survey

Choosing comparable areas

Geographical ‘wards’ (districts) were selected as those that mirrored most closely city-wide socio-demographic factors. As a result, the area of Saint Denis was chosen as being the area situated closest to the city centre in Montpellier with the greatest socio-economic diversity, this was considered important as the goal was to select an area representative of city-wide socio-demographic factors. It was then possible to choose an area in Nottingham that represented the ‘best-match’ possible to Saint Denis in terms of socio-economic factors and Park Ward was the chosen geographical area. The area chosen in England (2.52 km\(^2\)) was larger than the area in France (0.41 km\(^2\)) with a population approximately twice the size. The socio-demographic information available in Nottingham was at ward level\(^{25}\) and it was considered inappropriate to divide the ward as this could have introduced selection bias.

Maps containing each official area boundary were obtained for each city\(^{25,26}\) and modified so that all food outlets could be mapped. Although the boundaries were defined in this manner, the layout of the roads and buildings also contributed to the definition of the boundaries rather than simply a line drawn on a map. This was considered important as people do not actually shop according to theoretically defined boundaries. Therefore, in some instances, pragmatic decisions were made to step over the boundaries to make the study realistic from a shopper’s perspective.

Data collection instruments

A food list was constructed which contained fruit and vegetables (fresh, tinned and frozen)\(^{19}\) along with four energy-dense snack foods: crisps; nuts and other fried snacks; confectionary (including chocolate and sweets); cakes and biscuits. Whether each food item was available in the food outlet at the time of data collection was recorded and the number of varieties. ‘Subjective quality assessment’ was used to measure quality of fruit and vegetables\(^{19}\). Rating scales were created to assess certain attributes: colour; tiredness/freshness; visible mould/rot; visible bruising/cuts; and whether the researcher ‘would buy/eat these’.

Data collection

Data collection took place in autumn 2002 in each city. To ensure consistency the same researcher (CP) collected all data which meant that any bias from subjective assessment was constant. All food outlets in each geographically marked area were visited on foot. Permission was sought from shopkeepers and the purpose of the study explained.

Data entry and analysis

All data were manually entered into an SPSS data sheet\(^{27}\) and checked for errors. Analyses for the general population survey were conducted on samples standardized for socio-demographic differences adjusted for age, gender, education level and BMI group using logistic regression. Cross-tabulations were carried out incorporating the Chi-squared test for independence. Following this, nominal regression adjusted the samples ensuring that any differences were not due to confounding variables such as age group, gender, BMI, educational level or employment status. Descriptive statistics were conducted in order to compile the basic list of food outlets (table 1). These figures were then adjusted to minimize bias due to the different sample sizes by calculating results per 1000 of the population. Percentages of food outlets selling fruit and vegetables and those selling snack foods were carried out in this manner. Variables were then re-grouped to create: three indices (see below): fruit and vegetable availability index; fruit and vegetable quality index, both based on a previous study\(^{19}\) and a snack food index, developed specifically for this study.

Availability of fruit and vegetables

A ‘Fruit and Vegetable Index’ was created, which showed the number of shops selling a ‘reasonable quantity’ of fruit and vegetables; \(\leq 8\) types or \(>8\) types, based on that from a previous study.\(^{19}\) Chi-squared tests were carried out to test the null hypothesis that there was no difference between the two independent samples.

Quality of fruit and vegetables

A ‘Quality Index’ was created by adding the three components of quality from data collected on ‘subjective quality assessment’: (i) quality of fruit and vegetables (80% of score); (ii) ‘would I eat these or not?’ (10% of score) and (iii) cleanliness of premises (10% of score). This was tested with the Mann–Whitney U-Test, based on that from a previous study.\(^{19}\)
than English respondents were better educated. More French respondents used large chain supermarkets more often (66.2%) compared with the French sample. More French respondents used small specialist shops at least once a week (66.2%) compared with the French sample. There were significantly more overweight/obese subjects in the French sample, as the proportion of the French sample was aged <35 years.

Results

Socio-demographic profile of the population survey

The sample generated a gender spread that was different from the populations from which they were drawn.26,28 A larger proportion of the French sample was aged <35 years. There were significantly more overweight/obese subjects in the English compared with the French sample. More French respondents were better educated.

Food outlets used

English respondents used large chain supermarkets more frequently (89.9%) at least once a week compared with French (74.5%) respondents (P < 0.001) (table 2). This trend was also apparent for smaller grocery shops, with more English respondents using them at least once a week (66.2%) compared with French (52.1%) (P < 0.001). Far more French respondents frequented small specialist shops at least once a week (table 2): bakers, butchers, fishmongers, greengrocers and markets (P < 0.001). There was no difference seen between countries for use of health food shops and delicatessens. The use of the internet for food purchase was negligible in both countries.

Number and type of food outlets

The number of different type of food outlets city-wide (table 1) illustrate that there were more supermarkets and delicatessens in Nottingham than Montpellier, but less of all other types of shop per 100,000 population. There were far more food outlets in total within the St Denis ward chosen in Montpellier (n = 85) than the equivalent in Nottingham (n = 29), even though the former had a smaller population (table 1). These figures were adjusted due to the different population size in each selected area, thus providing results per 1000 of the population. As a result, there was more of every type of food outlet per 1000 of the population in the St Denis ward, Montpellier than Park ward, Nottingham.

Fruit and vegetables

There were more shops in the St Denis ward, Montpellier (10.8/1000 population) than Park ward, Nottingham.
Table 3 Number of food outlets in each country selling fruit and vegetables or snack foods

<table>
<thead>
<tr>
<th>Type of fruit or vegetable</th>
<th>England</th>
<th>France</th>
<th>$\chi^2_{df=1}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh fruit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤8 types</td>
<td>9</td>
<td>69.2</td>
<td>5</td>
</tr>
<tr>
<td>&gt;8 types</td>
<td>4</td>
<td>30.8</td>
<td>20</td>
</tr>
<tr>
<td>Fresh vegetables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤8 types</td>
<td>2</td>
<td>20.0</td>
<td>14</td>
</tr>
<tr>
<td>&gt;8 types</td>
<td>8</td>
<td>80.0</td>
<td>17</td>
</tr>
<tr>
<td>Tinned fruit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤8 types</td>
<td>12</td>
<td>92.3</td>
<td>15</td>
</tr>
<tr>
<td>&gt;8 types</td>
<td>1</td>
<td>7.7</td>
<td>1</td>
</tr>
<tr>
<td>Tinned vegetables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤8 types</td>
<td>10</td>
<td>62.5</td>
<td>13</td>
</tr>
<tr>
<td>&gt;8 types</td>
<td>6</td>
<td>37.5</td>
<td>17</td>
</tr>
<tr>
<td>Frozen fruit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤8 types</td>
<td>1</td>
<td>100.0</td>
<td>1</td>
</tr>
<tr>
<td>&gt;8 types</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Frozen vegetables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤8 types</td>
<td>5</td>
<td>83.3</td>
<td>9</td>
</tr>
<tr>
<td>&gt;8 types</td>
<td>1</td>
<td>16.7</td>
<td>2</td>
</tr>
</tbody>
</table>

| Type of snack food item   |         |        |                |
|                          |         |        |                |
| Crisps                   |         |        |                |
| ≤11 types                | 4       | 16.0   | 22             | 78.6     | 20.7* |
| >11 types                | 21      | 84.0   | 6              | 21.4     |      |
| Nuts and other fried snacks|        |        |                |
| ≤6 types                 | 10      | 52.6   | 5              | 26.3     | 2.7  |
| >6 types                 | 9       | 47.4   | 14             | 73.7     |      |
| Confectionary (including chocolate, sweets) | | | | | |
| ≤44 types                | 4       | 17.4   | 25             | 71.4     | 16.2* |
| >44 types                | 19      | 82.6   | 10             | 28.6     |      |
| Cakes & biscuits         |         |        |                |
| ≤47 types                | 8       | 40.0   | 12             | 54.5     | 0.9  |
| >47 types                | 12      | 60.0   | 10             | 45.5     |      |

*P < 0.05

(3.9/1000 population) selling any kind of fruit and vegetables (fresh, tinned or frozen). Similarly there were more shops in Montpellier (6.5/1000 population) than Nottingham (1.5/1000 population) selling fresh fruit and vegetables.

The 'Fruit and Vegetable Index' was created to estimate the number of outlets selling a reasonable range of fruit and vegetables (≤8 types or >8 types). No significant differences were observed (table 3) except for fresh fruit availability, as a larger percentage of shops in England (20.8%) compared with France (8.8%) sold >8 types of fresh fruit.

Quality of fruit and vegetables

For the 'Quality Index' (figure 1), the median for the French sample (89.1%) was higher than that of the English (75.3%). The French sample also had less variability of the score values, the French sample (89.1%) was higher than that of the English (75.3%).

Snack foods

A much larger proportion of shops in England sold a greater variety of crisps (England 84.0% and France 21.4% selling >11 types) and confectionary (England 82.6% and France 28.6% selling >44 types) (P < 0.05). There were no observed differences for availability of nuts and other fried snacks and cakes and biscuits between areas (table 3).

Discussion

The studies reported in this article investigated whether current stereotypes of shopping practices and food availability in Southern France and Central England reflect reality. Some of the findings confirmed current stereotypes of French and English food cultures. However, the most interesting findings were those that were unexpected. One such surprising result was that the availability of healthier foods, especially fruit and vegetables, was as good within the food outlets in Nottingham as in Montpellier (except for fresh fruit). Other studies in England have found that small local stores offer a good range of ‘healthy food’ items. This suggests that availability is not necessarily an obstacle to eating healthily in Nottingham and it may reflect increasing consumer demand for healthier eating, as previous findings of the study indicated that English respondents report making more positive changes to eat healthily. This may have been due partly to the tendency of French shops to be specialist single product shops, e.g. bakers, that you would not expect to sell other food items. However it was decided not to omit any outlets from the analyses, as assumptions on whether certain foods would be sold in certain types of outlet could introduce subjective bias that may not apply in the same way in both cultures. Another unexpected finding was that the quality of fresh fruit and vegetables was comparable in both countries, although the French data suggested that quality was more consistent, but this did not reach significance. Even though subjective quality assessment is limited, the fact that the same researcher (CP) conducted all the assessments in both countries meant that any bias was constant.

As expected, there was much wider access to and availability of energy dense foods such as crisps, fried snacks and confectionary items in England. This is perhaps unsurprising as Britons have been described as Europe’s largest consumers of snacks, and for the French, snacking appears to be a different practice, which may be one contributing factor to the higher prevalence of obesity in the UK.

Food shopping was done ‘under one roof’ more regularly by English than French respondents. This was supported by the fact that there were more supermarkets city-wide in Nottingham than in Montpellier. Much recent debate has covered the negative impact supermarkets have in environmental terms and how they can distort local competition. The evidence that supermarkets might effect health, however, remains inconclusive. One American study showed that poor access to supermarkets might have negative implications for dietary quality, A recent UK study reported no evidence that use of large scale retailing affected fruit and vegetable consumption.

The French used smaller independent shops such as bakers, butchers, fishmongers and markets more often than the English, which was reflected in better accessibility of these smaller specialized shops in France. The fact that there were less food outlets per 100 000 population in Nottingham reflects.
the diminishing role of small scale traditional local retailers in the UK,²,³ such as bakers and butchers, which appear to have persisted more in France. The diversity and variability of shops found in Saint Denis not only typify French food culture, but obviously influence the choice of specific foods available to consumers in the local community. One of the other notable observational differences between study areas was the presence of several open air markets in Montpellier. These influence availability, choice and quality of foods, particularly fresh locally produced items such as fruit and vegetables, herbs, olives and cheeses.

The trend towards shopping ‘under one roof’ in England may also reflect the English desire for convenience,²² whether that be for types of food bought and consumed, or the kind of shops used. This illustrates an English population that prioritizes other activities for ‘leisure’ time besides purchasing and cooking food, whereas the French place far greater value on the pleasurable and social aspects of food shopping, preparation and eating.

There are limitations to carrying out any cross-cultural research and this study is no exception. The geographical areas were selected based on a pragmatic decision as it would have been impossible to select two identical geographical areas for comparison in two separate countries, especially a northern and southern European one, where residential and commercial areas are situated to reflect the way of life in each area. This is confirmed by the differences seen between Nottingham and Montpellier in food outlet type and number. Although attempts were made to optimize response rates for the main survey,³⁴ these were lower than expected and samples were not as representative of the populations as desired. Our study over sampled for males/older people and under sampled for females/younger people in Nottingham,²⁸ but was representative of population gender and age distribution in Montpellier.²⁹ However, analyses adjusted for socio-demographic differences between samples so that findings are due to French or English residency.

Further limitations are attributable to the use of a cross-sectional survey. It would be interesting to conduct this study again to see how shopping practices evolve over time, however, as the differences are embedded so deeply in the food culture they may not be expected to change much. The depth of population surveys is also limited. By using complementary qualitative methods, the richness could potentially further explain cultural aspects of shopping practices.

One component of food choice not covered in this survey, which may be of interest for future work is the socio-economic factors, particularly with regard to food access and availability, where income and cost have a major influence on what people choose to buy.⁹,¹⁰ It is likely that costs differ between France and England, and personal observation has demonstrated that certain food items are cheaper in France. Economic cross-cultural comparisons would not be easy, however, and in order to measure these with accuracy, references would need to be made that account for the differences in average income. This may be particularly challenging in light of the recent introduction of the Euro in France, where there is a feeling that it may not be poor availability that is the major obstacle to eating healthily in the UK, but other factors such as motivation to choose healthier foods. Availability of fruit and vegetables in the UK seems to be reasonable, but this is counterbalanced by an enormous barrage of availability of high energy snack foods. This current study has outlined new evidence to confirm the stereotype that the culture of shopping in individual shops still persists in France, whereas in England there is more shopping ‘under one roof’, even if this takes place in a local corner shop. This ties in with previous work that indicated the main influence discriminating eating habits in Mediterranean France and Central England can be attributed to culture.²²,²³ The fact that supermarkets are used more may mean less physical activity (walking and carrying). Similarly, supermarkets may ‘seduce’ consumers to buy cheaper, less healthy snacks, which are often on special offer and very cleverly marketed. This debate remains inconclusive and further studies should investigate in more detail what impact supermarkets have on health. We suggest that future public health nutrition policies at both local and national levels need to consider the cultural context as well as impact of the local food environment in relation to obesogenicity.

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Conflicts of interest: None declared.

Key points

- This article aims to describe patterns of food shopping and availability of fruit and vegetables and snack foods in Central England and Southern France.
- Food shopping was done ‘under one roof’ more often in England, whereas in France, shopping was done in smaller specialist shops, which was reflected in their presence within the locality.
- Surprisingly, shops in England were as likely to stock fruit and vegetables as those in France, and the quality of fresh fruit and vegetables was comparable. However, less healthy foods, such as crisps and confectionery were more widely available in England.
- Even though availability of fruit and vegetables was good in both countries, snack foods were more abundant in England. This clearly impacts on the food environment and could explain the higher prevalence of obesity in England, factors which are also influenced by culture, habits and convenience.

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