The importance of co-location and culture in determining destinations for transport planning: a case study of access to a suburban healthy food basket

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Background

Much previous research on the availability, accessibility and price of healthy foods in local environments has relied exclusively on population-weighted centroids and geographic locations of food outlets.1,2 Further, only around half of previous studies that measured proximity to food outlets used street network distance.3,4 While this approach determines whether or not families/neighbourhoods have physical access to healthy foods, it ignores preferences: where residents actually choose to purchase food and their motivations for shopping there. Exploring important influences on destinations for food shopping requires integrating and analysing individual and spatial data in novel ways.5

Methods/Data

Survey of main food buyers

- In partnership with a Jewish secondary school, we distributed a short paper questionnaire to Year 9 pupils (aged 13-14) for the household’s main food buyer to complete. The survey could also be completed online. Survey topics included: frequency purchased items from the survey basket.
- The response rate was 24% (n=26, of whom 18 completed the survey online).
- Land use and spatial data
- Home address and locations for food shopping were geocoded using the postcode.
- Land use data from UK national mapping agency identified local shops. A census of shops in Bournemuhward was conducted to determine availability and price of the most frequently purchased items from the survey basket.
- Transport networks were derived from UK road centrelines maps and transformed using geographic information systems (GIS) to prepare data for space syntax network analysis.
- Combined analysis
- Street network distance was computed from home address to (i) nearest and (ii) actual food outlets visited and street network accessibility was analysed using space syntax;
- Influence of cultural preferences was examined by comparing travel distance to ‘kosher’ vs. ‘non-kosher’ shops after accounting for number of items purchased.

Results

Figure 1 shows the results of the survey and spatial analysis of participants’ food shopping habits. The majority of participants (92%) usually travelled to the main shopping destination by car, taking <15 minutes to travel there. Most items were purchased from a large supermarket close to the school (Figure 1). Quality or freshness was the most important reported influence on food choice (Figure 2). The street network distance travelled from home to ‘kosher’ shops greatly exceeded that of ‘non-kosher’ shops (Figure 3). Mean distances per item purchased were:
- 6,974 metres to kosher shops
- 811 metres to non-kosher shops

Many of the chosen shops were situated on accessible routes (Figure 4), although the (limited) results suggest that either routine bulk shopping (in the case of the supermarket) or cultural preferences (in the case of the smaller kosher shops) are the overriding factors in food shopping preferences. Further qualitative study is needed to explore decision-making further.

Discussion

Combined survey and spatial data analyses are feasible and can broaden understanding. Our exploratory study suggests that residents are willing to travel outside their immediate locality to purchase culturally appropriate food in specialist shops.

Strengths

- Our pilot study used innovative methods to go beyond exclusive use of spatial data to examine destinations for and influences on food shopping – providing insight into preferences associated with culture.
- An interdisciplinary project involving researchers from the Faculty of the Built Environment and the Faculty of Population Health Sciences.
- Data from different sources (survey and GIS) were brought together in a novel way.
- National surveys cannot provide details about ‘locality’; we utilised local knowledge and school contacts to gather data on food shopping destinations in a timely and cost-effective manner.

Limitations

- The sample size was small in our pilot study. At this stage, our research is descriptive and exploratory. Our findings are not generalisable to the wider English population; those surveyed were parents of children aged 13-14 at a single faith school.
- The response rate was moderate, but within the expected range for a school-based survey.
- Difficulties in recruiting a second school prevent conclusions being drawn about the co-location of the study school with the large supermarket.

Conclusions

We have shown how an innovative use of survey and spatial data can reveal the influences of daily routines and cultural preferences on destinations for food shopping.

Existing literature on access to healthy food and ‘food deserts’ focuses largely on distance to nearest supermarket/food outlet. In practice, residents are willing to travel beyond their immediate locality to purchase culturally relevant foods from specialist shops.

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References