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The food retail environment and its use in a deprived, urban area of Scotland



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ABSTRACT

Objectives: This study sought to describe the food retail environment and its use in a deprived urban area in Scotland by mapping all food outlets and determining where residents do their main food shopping as well as investigating the availability of fresh fruit and vegetables (F&V) (as an indicator of healthy eating) and takeaway food.

Study design: Cross-sectional study.

Methods: The food retail environment, the number, size and food availability of all food outlets, was mapped in Viewpark, a small community located to the east of Glasgow. Subsequently a validated questionnaire was used to determine food shopping usage and habits.

Results: There was high availability of common fresh fruit and vegetables (F&V) and very high availability of fast food outlets. Only 9% of the sample shopped solely at local food outlets within Viewpark whilst 91% shopped at a large supermarket outside Viewpark ($n = 106$). Walking was significantly negatively associated ($B = -3.555$, $P = 0.008$) with shopping outside the community. The majority of respondents (80%) reported buying F&V weekly and 57% purchased takeaways at least once a week – these individuals were employed, over 45 years old and had at least one child.

Conclusions: The use of the local retail environment in a deprived community is influenced by car accessibility.

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Introduction

Local environmental factors that influence food access involve two elements: access to foods for home consumption from supermarkets and grocery stores, and access to ready-made food for home and out-of-home consumption (fast-food and takeaways).¹ These elements can serve as barriers or

enhancements to food choices² and may influence diet patterns and quality.³ The relationship between the local food environment and dietary outcomes is complex and has not been clearly established.⁴ Some studies suggest that the local food environment is associated with unhealthy diet (i.e. low consumption of fruit and vegetables (F&V) and high consumption of sugar and fat)⁵ whilst a systematic review of evidence shows none to moderate associations.⁶ Additionally,

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easy access to large retail supermarkets is associated with increased consumption of fresh F&V.^{7,8}

Dietary patterns are also associated with the socio-economic level of neighbourhoods. Individuals living in deprived areas have a greater tendency to consume unhealthy diets.^{9,10} This has been controversially linked to the food environment by findings supporting that living in deprived communities increases the exposure to poorer food quality environments.^{11,12} However, the effect of deprivation on the characteristics of the local food retail environment and how individuals interact with it is unclear. A study in America showed that residents of minority and deprived neighbourhoods have greater access to 'unhealthy' food outlets (e.g. fast food) however these neighbourhoods also have access to other food retailers offering a large variety of foods which are not classified as 'unhealthy' (e.g. supermarkets).¹³ Shohaimi et al. (2004) suggested that consumers may bypass these environments to shop at other supermarkets further away from their immediate neighbourhood despite economic and mobility constraints.¹⁴ Meanwhile, cross-sectional studies in different countries have been more contradictory, reporting both positive¹⁴ and negative associations between food retail provision, individual diet and F&V intake.^{15,16} A study in England compared the availability, price and variety of a range of healthy and unhealthy foods and the quality of F&V. Whilst there was no difference in availability or cheapest price there was less variety of healthy products and poorer quality of F&V in the most deprived compared with more affluent neighbourhoods.¹⁷ In the West of Scotland, minimal differences in the availability of healthy choices between deprived and affluent areas have been reported.¹⁸ Furthermore, neighbourhoods in urban areas in the UK, have more access to food outlets and no associations have been found between proximity to them and diet or obesity.¹⁹ These contradictory findings may be explained by the observational nature of most of studies but also due to geographical differences in neighbourhood structures among countries and because these interactions are complex. A growing body of evidence has focused on measuring the food retail environment in terms of accessibility, availability, affordability, quality and accommodation by using innovative methodology such as geographic information tracking systems as well as surveys, inventories, store order, etc.^{6,20} The interlink between dietary behaviours has also been explored and considerations on socio-economic and demographic components have also been considered.⁶ Nevertheless, further research is needed to understand neighbour-specific use of the food retail environment, in particular how consumers interact with it. Therefore the authors aimed to describe the food retail environment and its use in a deprived community. The objectives of this study were 1) to map all food outlets and collect data on food availability 2) to determine where residents do their main food shopping, the amount spent on it and the mode of transport used and 3) to determine F&V (as an indicator of healthy eating) and takeaway food shopping habits.

Methods

Study population

Viewpark, a small community (11.69 sq km), located to the east of Glasgow, is considered among the most deprived areas

of Scotland with high rates of premature death from heart disease and a high prevalence of childhood obesity.²¹ A Government initiative, the Healthy Weight Communities Programme, was launched in Viewpark in autumn 2009 with the goal to achieve healthy weight outcomes for children and thus prevent obesity in adulthood.²²

Study design

This cross-sectional study comprised of two stages. A food mapping exercise of Viewpark took place over a two-week period in summer 2009. A single researcher (DC) determined the number, size and food availability of all food outlets in the area. Viewpark was selected for mapping using boundaries specified by the Boundary Commission for Scotland 2007 as used by the Healthy Weight Communities Programme. Viewpark has clear physical boundaries (two motorways and an industrial state) making it relatively enclosed and follows the description of a natural community.²³ Store sizes were classified as large (>10,000 sq ft), medium (1500–10,000 sq ft), and small (<1500 sq ft).²⁴ Fast food outlets were defined as outlets selling out-of-home foods with a takeaway service, these included restaurants, cafés, takeaways and mobile food units (vans).

Secondly, a randomly recruited, convenience sample from the Viewpark population completed a questionnaire to determine food shopping habits. 94 questionnaire respondents were required to achieve a statistically representative sample of the population with a Confidence Level of 95%; Confidence Interval of 10 and ward population of 5560 inhabitants.²⁵ To participate in this study, subjects had to be older than 16 and residents of Viewpark.

Data collection

Food availability checklist

To determine food availability a checklist was used based on a 36 item shopping basket requiring the researcher to mark 'yes or no' to whether a food item was available in the store or not. As Viewpark has a predominantly white British population (98.7% white British, Scottish Census, 2001) the checklist was based on the white British food basket in the study of food accessibility in Hackney, London.²⁶

Shopping habits and preferences

An adapted version of a validated food supply questionnaire²⁷ was used to determine shopping habits and preferences. The questionnaire assessed where residents shopped for their main food shopping and how frequently, while also considering the approximate spending and the transport used. Respondents were asked to rank their two main retailers for food shopping and the reasons why they chose to shop there. The questionnaire also asked questions about F&V and takeaway food purchasing choices. Sociodemographic information was collected for each individual. Deprivation (most deprived = 1; least deprived = 5) was determined using the Scottish Index of Multiple Deprivation (SIMD) scores, using individual respondents postcodes.²⁸ Data collection at random times, days and locations was carried out by the same researcher (VSS) during a two-week period in June 2010. Participants received a basket of strawberries as a thank you token.

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