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Fast food restaurant locations: could they be ‘supersizing’ local communities?

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This review examines the current state of knowledge related to the location of fast food restaurants. Previous studies have revealed some communities are more exposed to fast food restaurants. However, the influence of increased exposure to fast food on dietary behaviours remains unresolved. This is identified as an area of priority for future research.

Introduction

The fast food industry has been growing rapidly in recent years increasing the accessibility of fast food restaurants. This is particularly true in neighbourhoods that are less wealthy.¹,² However, the extent to which fast food consumption is driven by personal preference and exposure to fast food is not well understood. It is suggested that increased exposure to fast food restaurants may have detrimental health outcomes such as increased weight gain.³ Therefore we need to better understand the influence of exposure on dietary behaviours and act on regulating their presence within neighbourhoods.

Changes in fast food accessibility and consumption

The expansion of the fast food industry since the late 1970s has coincided with increased fast food consumption over the same period. In the US the percent of total food expenditure spent on foods outside the home rose from 26% to 39% between 1970 and 1996.⁴ The contribution of food prepared outside the home to total calorie intake within the US was 32% in 1994–96, a substantial rise from the 18% recorded in 1977–78.⁵ In the years 1998–99 and 2003–04, households within Australia spent just under 15% of total household food expenditure on fast food and takeaway alone.⁶,⁷

Much of the data on temporal changes in fast food consumption are US based and, in most cases, a little outdated with many of the studies reporting on data from the 1970s up to the mid to late 1990s.

A number of lifestyle and demographic changes may have led to a shift in consumer demand for fast food products. Today’s households have more disposable income and less time, both real and perceived, to prepare meals at home.⁸ Higher income may be associated with those seeking to eat at a place with table service while convenience and accessibility are more telling for those wishing to purchase fast food.⁹ The increase of women in the workforce is another factor that may have led to increased demand for fast food.⁹,¹⁰ These views suggest that consumer demand is the driving force behind increased fast food consumption.

In combination with the above individual influences, environmental factors, such as the increased accessibility to fast food restaurants may also be contributing to increased fast food consumption throughout the community. Studies on fast food restaurant locations have been descriptive with Jeffery et al.¹¹ the only study thus far to examine the influence of exposure to fast food restaurants on fast food consumption.

The location of fast food restaurants

The location of fast food restaurants within local communities has been coming under increasing focus. At present, fast food restaurant location has been studied in relation to neighbourhood income, wealth, socio-economic status (SES) or deprivation,¹,²,¹²,¹³ race,¹²,¹⁴ and schools.¹⁵

Neighbourhood wealth and SES

Neighbourhood wealth and SES have been the most popular topics of exploration for those describing fast food restaurant locations. Comparison of results across these studies is made difficult by the methodological differences in study design.

A US based study found only minor differences when comparing the prevalence of fast food restaurants in relation to neighbourhood wealth.¹⁷ Compared to the lowest wealth neighbourhoods, the highest wealth neighbourhood had only a marginally lower prevalence (RR 0.9, 95% CI 0.6-1.3) of fast food restaurants.
Another study on ‘out-of-home’ food outlets (chain fast food restaurants and other takeaway outlets) was conducted in Glasgow, UK. The small number of fast food restaurants in the study area meant the average density of fast food restaurants was low for all areas. The highest density was found in the second most affluent quintile. Using GIS the authors present a map of the study area which reveals that the outlets are more commonly located in the city centre, along highways and in cosmopolitan areas.

Cummins et. al. continued to build on research within the UK. A particular strength of this study was that it was conducted nationwide, whereas other studies have been local case studies which limited their ability to generalise from their results. This study examines the prevalence of McDonald’s restaurants in relation to neighbourhood deprivation across the whole of Scotland and England. The mean number of restaurants per 1,000 people in England rose from 0.007 in the least deprived areas to 0.030 in the most deprived areas. In Scotland the increase was from 0.004 to 0.025 respectively and for both countries combined the mean number of restaurants jumped from 0.007 to 0.028. One-way ANOVA revealed a significant positive linear relationship between mean number of McDonald’s restaurants and deprivation for England (p<0.001), Scotland (p<0.001) and the two countries combined (p<0.001). Results are not explained by a greater density of population per hectare in more deprived areas.

Reidpath et al. undertook the first study investigating fast food restaurant locations within an Australian context. The study was undertaken at a postal district level within Melbourne. The lowest income group had 5,641 people per fast food restaurant with the population per restaurant increasing across income categories. The highest income group had 14,256 people per fast food restaurant. When compared to the highest income area, the poorest income areas had 2.5 times more exposure to fast food restaurants.

Unpublished findings from the Victorian Lifestyle and Neighbourhood Study (VicLANES), also conducted within Melbourne, are consistent with those reported by Reidpath et al. The VicLANES project was undertaken across fifty randomly selected areas with high, mid and low levels of disadvantage. Examination of the number of fast food restaurants within two kilometres of road network distance from the residential address of survey participants revealed that the median number of fast food restaurants rose from one (Inter-quartile range (IQR) 0–2) in the least disadvantaged areas to three (IQR 1–5) in the most disadvantaged areas.

Schools

Austin et al. quantified the degree of clustering of fast food restaurants around schools. A spatial dependence was found to exist between the location of fast food restaurants and schools. The authors estimated that there may be up to three or four times more fast food restaurants within an area up to 1.5 kilometres from schools than would be expected if they were distributed in a way unrelated to schools.

Racial composition of neighbourhoods

Mixed evidence exists when examining the location of fast food restaurants in relation to the racial composition of neighbourhoods. Studies on this topic are limited to the US.

Morland et. al. found that fast food restaurants were fairly evenly dispersed across neighbourhoods. Nearly 60% of black respondents and 55% of white respondents were found to live in neighbourhoods with at least one fast food restaurant. Using the same dataset, prevalence of fast food restaurants by racial segregation was examined for two of the four communities studied previously. An examination of adjusted prevalence rates showed that fast food restaurants were higher in racially mixed (RR 2.3, 95% CI 1.5–3.4) and predominantly white (RR 1.5, 95% CI 1.0–2.2) communities compared to predominantly black communities.

Block et al. report that as fast food restaurant density increased by 10% within one-mile buffers around New Orleans neighbourhoods, the neighbourhood median household income decreased by 4.8% while the percentage of black residents increased by 3.7%. This indicates that neighbourhoods with 80% black residents would be exposed to 2.4 fast food restaurants per square mile compared to neighbourhoods with 20% black residents who would be exposed to 1.5 restaurants per square mile. Given the average size of the neighbourhoods, it is estimated that predominantly black neighbourhoods are exposed to six times more fast food restaurants.

The area of analysis for this study was limited to one parish with a large poor and black population and therefore any link may be due to the characteristics of this region. However, the conclusions made by this study are strengthened through the methodological inclusion of buffers zones and the controlling of environmental variables such as alcohol outlet density (as a measure of commercialisation), presence of highways and median home values. These may all influence the placement of fast food restaurants and were included as covariates in the model.

Much of the research undertaken on fast food restaurant locations have been local case studies. Examinations have taken place in different countries providing an array of results. Unfortunately, the definition of what constitutes a fast food restaurant, measures of neighbourhood SES or wealth, and the geographic unit being analysed have been inconsistent across studies. There is a growing need to create consistent definitions across studies while further work examining variations in exposure to fast food restaurants is needed within Australia.

Does consumption vary by exposure?

Demographic, socio-economic, and personal preferences have all been found to influence individual choices related to fast food consumption. A limited number of studies have focused purely on this topic and have instead discussed profiles of fast food consumers within the scope of their own study aims. Research that has been undertaken in this area has again been mostly US based.
Although this is an important area for future research to focus on, when examining individual correlates of fast food consumption most studies have ignored any potential environmental confounders such as the relationship between residential address and exposure to fast food restaurants.

A limited menu, fast ordering time and consistent product all contribute to the popularity of fast food, however it is argued these become irrelevant if the most critical factor is not met i.e. that outlets are easily reached. 23

Using individual and area level data, Jeffery et al. was the first study of its kind to examine the effects of the number of fast food restaurants within a defined proximity to home and work addresses on fast food consumption. 11 Within two miles, the number of fast food restaurants near home or work was not associated with increased fast food use. However, the authors also examined non-fast food restaurants and found a significant positive correlation between increased exposure to restaurants and higher restaurant use. These results were all adjusted for age, education and gender. Results were presented only for the two-mile radius although it was noted that the results for the 0.5 mile and one mile radius distances were similar.

It is not known how varied exposure to fast food restaurants was for the different study participants. If exposure to restaurants did not vary greatly then the chances of detecting associations between exposure and consumption are minimised. The possibility that this occurred was increased by the use of the relatively broad definition of ‘fast food’ used in this study.

**Fast food restaurants and health outcomes**

Two descriptive studies have concluded that a higher density of fast food restaurants within communities can contribute to poorer health outcomes. Maddock found that within a multiple hierarchical regression model that explained 70% of variance in US state obesity rates, 6% of the variance was explained by square miles per fast food restaurant and residents per restaurant. 1 A Canadian study using adjusted odds ratios showed that mortality and hospitalisations from acute coronary syndrome was highest in regions with greater numbers of fast food restaurants. 24 Other studies 21, 22, 25, 26 which incorporate individual level data, found no evidence to support the above findings. Two of these studies also provided no evidence to suggest a link between exposure and a number of child health outcomes 25, 26 while the exposure in the study by Simmons et al. 22 which was conducted in a rural area of Victoria, Australia, was too limited to draw any conclusions as there is minimal access to fast food outlets in this area.

**The future of fast food restaurant locations**

While major influences on fast food consumption and health outcomes such as obesity continue to be debated, now may be the right time to act and regulate the growth of the fast food industry before it expands to a point from which there is no return.

The power to improve public health through land use regulations has previously been reviewed by Ashe et al. 27 It was concluded that within the US the same powers used to control the location and operation of retail alcohol, tobacco and firearm outlets can be employed to limit poor nutritional options within a community. Six actions are suggested that may be enforced to reduce the number and impact of fast food restaurants within the community. These include the requirement that they must be located a minimum distance from youth facilities such as schools and playgrounds and the prohibition of the drive-through service.

Austin et al. 28 believe that clustering of fast food restaurants around schools undermine public health efforts to improve dietary behaviours among young people. Therefore initiatives such as those suggested above may contribute to improving eating behaviours among the young.

Sallis and Glanz provide evidence that communities would support such initiatives. 26 They point to recent research findings that 87% of respondents would prefer fast food and chain restaurants to display nutritional information while 46% supported the limiting the number fast food restaurants within a community. A Californian city, Calistoga, already have a ban on chain brand fast food restaurants with a New York councilman pushing to have a similar zoning ordinance against fast food restaurants introduced to New York. 29

**Where to from here?**

Current studies which describe the location of fast food restaurants all suffer from a lack of temporal analysis. Therefore it is unknown if fast food restaurants target areas that are, for example, less wealthy or whether the presence of fast food in fact contributes to the area becoming more deprived.

Studies to date have also failed to adequately address whether increased exposure leads to increased consumption and ultimately poorer health outcomes. A crucial focus for the future is to identify to what degree, if any, the location of fast food restaurants influence fast food consumption. Although some studies do address this to a certain degree, it has rarely been the singular focus of the research.

Sallis and Glanz 31 believe that a better understanding of the way local food environments influence eating habits is best achieved through multilevel studies. This would allow the evaluation of the relative contribution of individual and environmental influences. With most current study designs being of a descriptive nature they are not able to answer such questions.

Future research on the location of fast food restaurants and influences on fast food consumption need to consider how comparable and consistent study designs can be implemented. A better understanding of the degree fast food consumption is influenced by individual choice and the local food environment will assist those involved in either health promotion or city planning to adjust policies accordingly.
References