

Privileged Spaces: An investigation of how obesity inequalities are constructed through the neighbourhood food environment

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1. Introduction

Obesity, and its associated health risks, is a critical health challenge for international and national policy communities. In recent years Australia has witnessed the rapid surge in obesity rates with an estimated 67% of adults, 18 years and over, categorised as obese and/or overweight [1]. However, there has been a tendency to examine obesity, in both policy and research communities, exclusively through individual determinants, resulting in policies that target individual responsibility but neglect the broader contextual dynamic which influences individuals' behavioural choices [2].

In this paper, I expand the scope of inquiry to explore the contextual factors which influence obesity, focusing exclusively on food environments within neighbourhood settings and how variances between these spatial environments support or hinder obesity-related behaviour.

This paper, through this broadened framework, incorporates alternative disciplinary knowledge neglected in current research silos, operating in the nexus between art and science. I have utilised the conceptual framework of psychogeography, referenced in the field of Art History, to consider how space is a constructed phenomena and how this construction influences the behavioural choices of those subjected to these environmental conditions [3]. Applying this to the issue of obesity, I explore how neighbourhood food environments in Sydney, Australia, function as obesogenic spaces, investigating the impact of this relationship on individual behavioural outcomes. Further, acknowledging the constructed nature of these environments, allows for the exploration of how these urban settings vary, through which I highlight the correlation between the socio-economic status of a neighbourhood and its link to an obesity conducive zone.

Consequently the paper offers a novel approach to understanding the causes of obesity and emphasises the necessity to reorientate the burden of responsibility away from the individual to broader societal structures, offering a more holistic solutions framework than currently conceptualised.

2. Methodology

The methodology was created utilising an interdisciplinary experimental research design which aimed to bridge Visual Arts and Art History techniques with established scientific methods to investigate the area of research. Inspired by the techniques used by the avant-garde group the Situationist International, who operated predominantly in Europe between the 1950s-70s [4], I explored five urban settings in the Greater Sydney Region - (i) Bass Hills, Condell Park and Georges Hall; (ii) Dover Heights, Rose Bay, Vacluse and Watsons Bay; (iii) Lakemba, Wiley Park and Punchbowl; (iv) Malabar, La Perouse, Chifley and Maroubra; and (v) Revesby - in which I utilised a combination of both walking and driving to investigate how the retail food environments within these settings resulted in constructed spaces [5]. In order to illustrate this empirically, I recorded two forms of observational data:

1. visual data, through the use of photography to capture the exterior settings of these spaces and;
2. textual data, in which I recorded a list of the retail food options within these environments divided into four categories (i) supermarkets; (ii) fresh produce vendors; (iii) convenience stores; and (iv) fast-food restaurants.

Subsequently I formulated, using the textual data gathered, a Retail Food Environment Index, an established method within the literature which provides a measure of the degree of an urban space in exposing residents to healthy and/or unhealthy food choices. I then compared these findings with data from the Australian Health

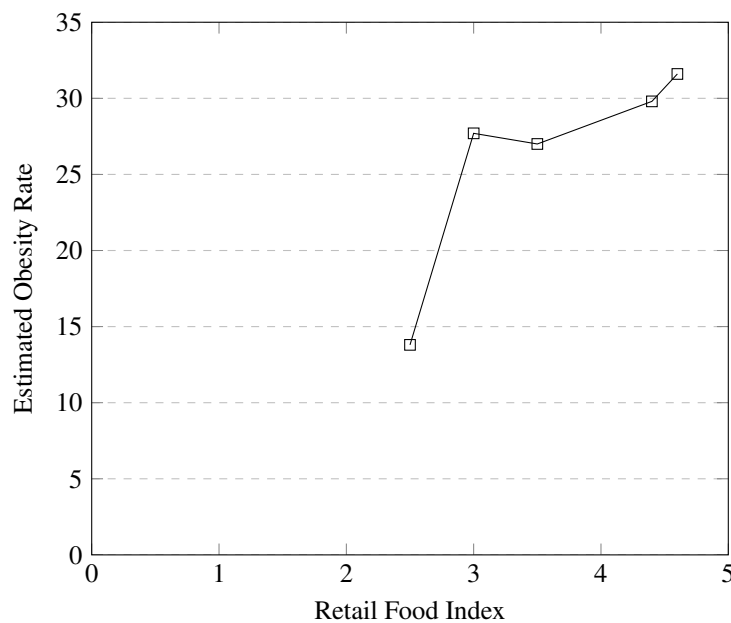
Tracker which measured the percentage of adults over 18 who were obese in each of these geographical locations [6]. These findings were enhanced through the incorporation of the visual data recorded which was utilised to aid comparative work in understanding the variations between these urban settings.

3. Key Findings and Summary Discussion

3.1. The Construction of Obesogenic Neighbourhoods

Graph 1 displays each geographic location's RFEI score in relation to the neighbourhood's estimated obesity figure, which is charted comparatively for each of the five environments. The results reveal a consistent relationship in which a higher RFEI score resulted in a higher projected obesity figure, albeit one point in the dataset. This result therefore aligns with other research within the field which has found a positive relationship between the structure of local food environments and obesity rates [7].

Graph 1. Obesity Prevelence by Retail Food Index, Adults Age 18 and Over



** Note the data used to form the y axis is sourced from the The Australian Health Tracker [2020] taken from the Population Health Area Database*

- Utilising psychogeography, as a conceptual framework to illuminate the findings, I argue that space functions as a determinate for behaviour and therefore, environments which contain higher rates of fast-food options such as Bass Hill in which, for every 1 grocery or produce store there are 4.6 fast-food or convenience stores, residents are incentivised by this construction to opt for unhealthy alternatives [8]. This incentivisation, I argue, occurs through the process of individual decision making in which factors of accessibility, availability and convenience, which influence a behavioural outcome, is calculated on the variety of choices presented within an environment [9].
- Understanding the importance of space in promoting obesity related behaviour emphasises the necessity to consider urban planning as a tool to combat current rising trends. Designing neighbourhoods around convenience and accessibility, not to fast-food restaurants, but rather grocery stores and produce vendors could provide a key measure to mitigating the rise of obesity. Environments, where such redesign is unfeasible, can be adapted in order to promote these desirable characteristics. Successful work has been done in the United States, in neighbourhoods that have previously been deprived of healthy options, through introducing grocery stores or working with local vendors to create viable healthy alternatives [10]. Further it is suggested that spaces where permanent change is not feasible, alternative solutions, such as the erection of temporary spaces, in the form of produce markets can serve as viable alternatives.

3.2. Neighbourhood Deprivation and Fast Food: Links to the aesthetics of space

Table 1 displays the inclusion of the additional point of the socio-economic status of each neighbourhood placed comparatively with the previous data. The result reveals the parallel trend in the rise in economic deprivation within a neighbourhood and the rise in both obesity and RFEI score. Interestingly the results, consistent with previous studies, highlights how fast-food restaurants cluster within lower-socioeconomic areas, which is particularly illustrated when noting the only fast-food franchise within the Dover Heights area was a Domino's [11].

Table 1. Retail Food Index by Estimated Obesity Score by Median Weekly Income

Neighbourhoods	RFEI Score	Estimated Obesity Score	Median Weekly Income
Dover Heights	2.5	13.8	\$2,741
Malabar	3	27.7	\$1,767
Revesby	3.5	27	\$1,568
Lakemba	4.4	29.8	\$1,153
Bass Hills	4.6	31.6	\$1,197

** Note the data used to form column three is sourced from the The Australian Health Tracker [2020] taken from the Population Health Area Database and the data used to form column four is sourced from the 2016 Australian Census*

- Theories on the politics of space, which explores how urban environments reproduce and reflect social inequality and structural divisions, can be utilised to explain the results [12]. I argue that certain spaces are de-privileged based on class structuring which leads to a process of deprivation amplification in which economic deprivation links to food option deprivation which links to health deprivation. Understanding this circle of deprivation reveals how obesity inequalities can be manufactured based on class structures which emphasises how exclusively analysing individual determinants of obesity neglects how macro structures of power also influence this relationship.
- Visually analysing the images displayed in Figure 1 and 2, a noticeable aesthetic trend emerges in relation to the exterior presentation of these corporate fast-food chains, in which there is repetitive design standard even between locations that results in a sense of order and control. Investigating this could provide a possible future line of inquiry which could examine how the corporate aesthetic of fast-food franchises encourages patronage which could be analysed through the prism of obesogenic environmental aesthetics. This would be particularly interesting when considering how this corporate aesthetic could potentially be enhanced in lower socioeconomic neighbourhoods as it is juxtaposed with the more informal bricolage qualities of these environments.



Fig. 1. Bass Hills, Condell Park and Georges Hall [January 2022]



Fig. 2. Lakemba, Wiley Park and Punchbowl [January 2022]

4. Glossary

- *Convenience Store*: a place was categorised as such, if it contained a limited variety of food options and primarily stocked snacks.
- *Fast Food Restaurant*: a place was categorised as such, if it had a minimal wait staff, takeaway options, quick wait times, food was predominately pre-processed and payment made before food consumption.
- *Grocery Store*: a place was categorised as such, if it stocked vegetables and fruit, fresh meat, wheat and dairy products.
- *Obesogenic Environment*: an environment which encourages and/or is linked to excessive energy intake, typically examined through nutritional and/or exercise factors.
- *Produce Vendor*: a place was categorised as such, if it primarily stocked fruits and vegetables and further included upscale organic stores and speciality ethnic stores.
- *Psychogeography*: explores how the construction and structure of a geographical environment has implications on the emotional and behavioural choices of individuals.
- *Retail Food Environment Index*: this is an indicator of the availability and density of unhealthy food options within a given area which is calculated by the equation below. Within the literature, it has been found that the presence of varying food stores directly relates to the consumption habits of residents, therefore neighbourhoods with higher index scores are directly linked to promoting and sustaining unhealthy consumption patterns in residents.

$$RFEI = (F+C)/(G+P)$$

- *Urban Environment/Neighbourhood*: for the purpose of this paper, these terms specifically refer to the geographic parameters consistent with a Population Health Area defined by the Australian Bureau of Statistics.

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6. Appendix

The below images provide a representative selection of the 81 images captured during the entirety of the Project. The images were selected based on quality of the image and ability to capture the researchers own impressions of the environments observed. A compilation was constructed for each of the set locations with the images best describing the above characteristics selected.



Fig. 3. Dover Heights, Rose Bay, Vaucluse and Watsons Bay [January 2022]



Fig. 4. Malabar, La Perouse, Chifley and Maroubra [January 2022]



Fig. 5. Revesby [January 2022]



Fig. 6. Lakemba, Wiley Park and Punchbowl [January 2022]



Fig. 7. Bass Hills, Condell Park and Georges Hall [January 2022]