

## Cronfa - Swansea University Open Access Repository

---

This is an author produced version of a paper published in:  
*International Journal of Population Data Science*

Cronfa URL for this paper:  
<http://cronfa.swan.ac.uk/Record/cronfa50093>

---

### Paper:

Mizen, A., Rodgers, S., Fry, R. & Lyons, R. (2018). Linking environment and health data to investigate the association between access to unhealthy food and child BMI. *International Journal of Population Data Science*, 3(4)  
<http://dx.doi.org/10.23889/ijpds.v3i4.906>

Open Access under CC BY-NC-ND 4.0 (<https://creativecommons.org/licenses/by-nc-nd/4.0/deed.en>)

---

This item is brought to you by Swansea University. Any person downloading material is agreeing to abide by the terms of the repository licence. Copies of full text items may be used or reproduced in any format or medium, without prior permission for personal research or study, educational or non-commercial purposes only. The copyright for any work remains with the original author unless otherwise specified. The full-text must not be sold in any format or medium without the formal permission of the copyright holder.

Permission for multiple reproductions should be obtained from the original author.

Authors are personally responsible for adhering to copyright and publisher restrictions when uploading content to the repository.

<http://www.swansea.ac.uk/library/researchsupport/ris-support/>

# International Journal of Population Data Science

Journal Website: [www.ijpds.org](http://www.ijpds.org)



## Linking environment and health data to investigate the association between access to unhealthy food and child BMI

Mizen, A<sup>1</sup>, Rodgers, S<sup>2</sup>, Fry, R<sup>3</sup>, and Lyons, R<sup>1</sup>

<sup>1</sup>Farr Institute, Swansea University Medical School

<sup>2</sup>Swansea University Medical School

<sup>3</sup>National Centre for Population Health and Wellbeing Research

### Introduction

Modelling the daily exposure environment provides evidence for policy and practice. However, the dose-response relationship between exposure to food environments and obesity has not been widely investigated. This study investigated whether increased retail food environment (RFE) exposure in children was associated with a larger body mass index (BMI).

### Objectives and Approach

Individually tailored environmental exposures were calculated in a GIS for home and school locations, and modelled walking routes to and from school. Exposures were linked to individual level health data in the SAIL databank for a cohort of individuals aged 11-13 years from south Wales who had BMI measurements. A fully adjusted multilevel regression model was fitted to investigate the association of RFE exposure with BMI. Based on the distance individuals lived from school, we investigated differences between children who have the potential to walk to school ("walkers" lived 4.8km).

### Results

Home exposure and exposure along the walk to school was significantly greater for children living in deprived catchments, compared with children living in affluent school catchments ( $t = -5.25$ ,  $p$

### Conclusion/Implications

Increased BMI was associated with greater RFE exposure along the walk home from school. The findings suggest that the walk home from school should be the focus for developing interventions and policies to discourage unhealthy eating. Research should be undertaken to better understand child purchasing habits.

