



Using Google Street View to examine changes in food environments around secondary schools in regional and metropolitan areas of New South Wales, Australia

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Food environments surrounding secondary schools are a known influence on the purchasing and consumption habits of adolescents⁽¹⁾. Understanding their obesogenic potential is important for informing strategies to create more healthful food environments for adolescents, particularly for those living in regional areas, and is a key component of Australia's National Obesity Strategy⁽²⁾. This repeated cross-sectional study examined the food environment surrounding secondary schools in regional and metropolitan New South Wales from 2007-2023. Google Street View was used to collect data regarding food outlets within a walkable distance (1.6 km) of all secondary schools in Wagga Wagga and Blacktown, our regional and metropolitan case study areas respectively, over 17 years. A Food Environment Score⁽³⁾ tool was used to characterise the healthfulness of food environments by categorising food outlets into Food Outlet Type categories (e.g. Cafés, Fast-Food Franchises, Restaurants etc.) and Healthfulness categories ("Healthful", "Less Healthful", "Unhealthful"). Descriptive statistics were used to characterise changes in the food environments by Food Outlet Type and Healthfulness categories from 2007-2023. Chi-Squared tests were used to determine any significant differences in the proportion of healthful, less healthful and unhealthful food outlets between the regional and metropolitan study areas and between 2007 and 2023 in both areas. In both Wagga Wagga and Blacktown, the most common food outlet types surrounding secondary schools from 2007-2023 were classified as less healthful or unhealthful. As of 2023, less healthful food outlets [restaurants (19.4%), cafes (16.8%)] and unhealthful food outlets [fast-food franchises (15.1%), independent takeaway (14.1%)] were the most common food outlet types in Wagga Wagga, making up 52% and 36% of all identified food outlets respectively. These outlet types have remained the most prevalent over the 17-year period, though restaurants and cafes have since surpassed fast-food franchises and independent takeaway stores, by proportion, which were the most common in 2007. Similarly in Blacktown, 2023, less healthful [restaurants (21.1%), cafes (11.1%)] and unhealthful [fast-food franchises (17.4%)] were the most common food outlets, making up 41% and 37% of all identified food outlets. Restaurants, cafes and fast-food franchise outlets were consistently observed to be the most prevalent in Blacktown food environments over the 17-year study period. No significant difference was found when comparing the healthfulness profiles of regional and metropolitan food environments nor were significant changes observed between 2007 and 2023 in Wagga Wagga and Blacktown ($p > 0.05$ for all). The prevailing high proportion of less healthful and unhealthful food outlets near secondary schools in regional and metropolitan areas upholds the need for public health policies and planning strategies to address the obesogenic potential of school food environments.

Keywords: food environment; adolescents; secondary schools; Google Street View

Ethics Declaration

No

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References

1. Neufeld LM, Andrade EB, Ballonoff Suleiman A *et al.* (2022) *Lancet* **399**, 185–197.
2. Commonwealth of Australia (2022) National Obesity Strategy. https://www.health.gov.au/sites/default/files/documents/2022/03/national-obesity-strategy-2022-2032_0.pdf
3. Moayyed H, Kelly B, Feng X *et al.* (2017) *Nutr Diet* **74**, 29–35.