A systematic review employing the GeoFERN framework to examine methods, reporting quality and associations between the retail food environment and obesity

The retail food environment (RFE) refers to the availability, accessibility and composition of food outlets within local environments. Since the 1970's, in many wealthier countries there has been an increasing shift from local, small grocery stores to large, out of town supermarkets. Simultaneously, there has also been an increasing availability of food outlets selling fast, low cost, energy dense foods. These changes have coincided with a rise in obesity rates. Consequently, policy-makers have made a link between unhealthy food environments and obesity. However, due to the diversity of methods used in different studies, the evidence for this link is conflicting despite a substantial amount of research being available. To improve the uniformity of RFE research the GeoFern Framework was specifically designed. It is a reporting checklist covering five dimensions: i) source of food environment data eg. commercial, government, ii) how data from large data sets is selected, iii) methods of grouping different food outlets, iv) how address information is converted into data for mapping, v) the choice of measurement in relation to the distance of RFE from specific locations. This is the first study to systematically review the diversity of research methods used in RFE studies in relation to the GeoFern Framework. This review's aims are to: i) identify the methods used to measure RFE across the five dimensions ii) measure the quality of the research methods and iii) examine the evidence for relationships between RFE location and obesity.

113 studies met the selection criteria. Overall, it was found that the diversity of research methods used in RFE studies was high and that the methods used in studies are not well reported. Not one single study provided all the details rated essential within the GeoFern Framework. The most dominant conclusion noted was that no relationship between RFE location and obesity was found.

Overall, this review concluded that reporting of research methods applied is poor. This severely limits the strength of the evidence base and translating into policy. The authors state that it is essential that authors and journal editors ensure greater robustness of RFE research.