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Tackling obesity with big data: a new data reporting framework

Objective

Data that relate to nutrition and physical activity behaviours are being generated at an alarming rate, through smart phone applications, wearable devices and supermarket loyalty card schemes. Often these are referred to as 'big data'. When using such data in research, they are re-purposed, rather than generated specifically to answer a research question. As such, they present new challenges in reporting and interpreting. The purpose of this work was to generate a new framework for reporting big data sources that could be applied to a whole systems approach to obesity research.

Methods

Expert opinion, generated by a group of multidisciplinary, multi sector and international individuals was used to ascertain the most important requirements for reporting sources of re-purposed data. These experts were collectively named the Economic and Social Research Council funded Strategic Network for Obesity. A new reporting framework was created and then applied and tested on a variety of data sources. Exemplar indicative use cases were described for each data source, alongside an indication of how these relate to a whole systems approach to obesity, using the Foresight obesity systems map as a guide (Foresight, 2007).

Results

Eight areas were identified as essential to reporting of big data for obesity research: Background; Elements; Exemplars; Content; Ownership; Aggregation; Sharing; Temporality (BEE-COAST). The new BEE-COAST framework was applied and tested on data sources from the UK, including: Physical activity applications/wearables; Web based or smart phone apps to record diet; and Ordnance Survey (OS) Points of Interest (POI) Data. Collectively, the big data sources covered 80% of the obesity system, as depicted in the Foresight report (Morris et al., 2018).

Conclusions

New data sources, generated as 'big data' offer exciting opportunities for obesity research. However, effective reporting of such data are essential in order to maintain integrity and reproducibility of findings.

References

FORESIGHT. 2007. Tackling Obesities: Future Choices – Project report.

MORRIS, M. A., WILKINS, E., TIMMINS, K. A., BRYANT, M., BIRKIN, M. & GRIFFITHS, C. 2018. Can big data solve a big problem? Reporting the obesity data landscape in line with the Foresight obesity system map. *International journal of obesity*.