

Determinants and correlates of obesogenic food behaviours in preschool children: Systematic review of quantitative evidence

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Introduction

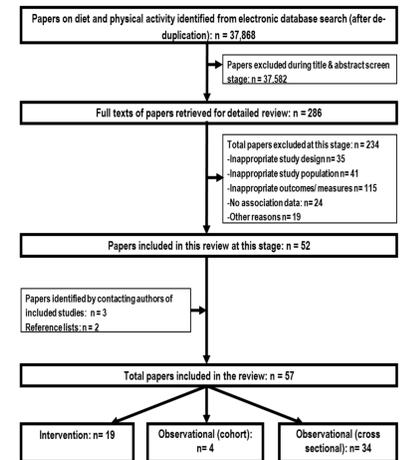
- Obesity prevalence among preschool children is increasing worldwide¹.
- Over 1 in 5 children in England are overweight/obese by the age of five².
- Understanding the determinants of 'obesogenic' food behaviours in preschool children is important to best inform interventions that promote healthy weight in early childhood and beyond.

Aims

To systematically review quantitative (intervention & observational) evidence on the determinants and correlates of obesogenic food behaviours (OFB) in young children (0-6 years).

Methods

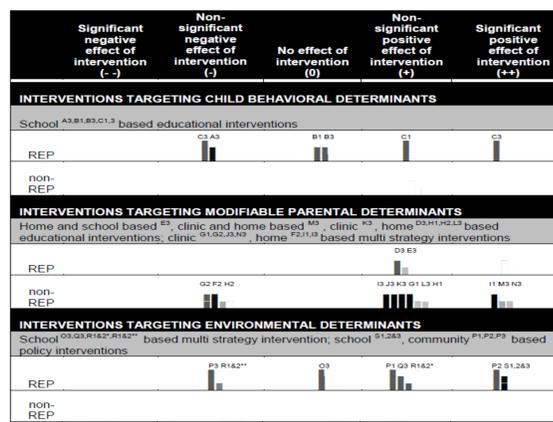
- Literature searched in eight electronic databases³.
- Studies meeting pre-defined inclusion criteria systematically assessed for quality as per EPPI methodology⁴.
- Quantitative evidence (interventional, prospective cohort and cross sectional) summarised using Harvest plots⁵ and narrative synthesis.
- Obesogenic foods classified as - sweet snacks, savoury snacks or obesogenic meals.



Results: Interventional evidence

- Most of the 19 interventions (USA n=6, Australia n=6, Europe n=5 and Asia n=2) were effective in reducing obesogenic meal consumption (n= 15) and/or sweet snack consumption (n=8) immediately post intervention.
- Six interventions aimed to reduce savoury snack consumption but most were ineffective (n=4).
- Nine interventions were in non-representative populations and 11 used a theoretical model of behaviour change.
- Fourteen studies targeted parental determinants, 10 environmental and five targeted child level determinants.
- Intervention duration varied from four weeks to four years and most studies had short follow-up period after delivery of intervention.

Overview of effect of interventions targeting determinants of obesogenic food behaviours in young children



REP: representative population; non-REP: non representative population

Categories of obesogenic food behaviours: 1: obesogenic 'sweet' food behaviour; 2: obesogenic 'savoury' food behaviour; 3: obesogenic meals.

*: nutrition intervention group; **: nutrition + physical activity intervention group

Intervention studies: A: Hardy 2010; B: Llargues 2011; C: Hu 2010; D: Fletcher 2013; E: Wyse 2011; F: Watt 2008 and Scheiwe 2010; G: Campbell 2013; H: Jones 2011; I: Da Costa Louzada 2012; J: Taveras 2011; K: Whaley 2010; L: Harvey-Berino 2003; M: Stark 2011; N: Klohe Lehman 2007; O: De Coen 2012; P: DeSilva 2010; Q: Vereecken 2009; R: Warren 2003; S: Korwanich 2008

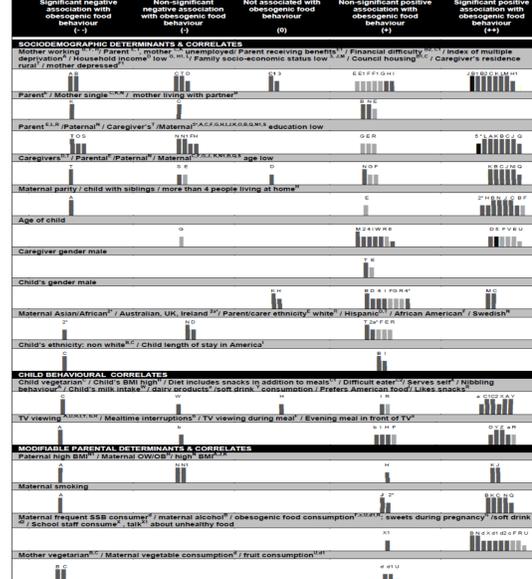
Code used in Harvest plots to present intervention and observational evidence:

- Position of bar based on direction and strength of association i.e. ++, +, 0, -, - -
- Height of bar represents size of study.
- Colour of bar represents quality: black, dark grey and light grey with darker bars representing higher quality studies.
- REP = Representative of general population, non-REP = not representative of general population.
- Study ID symbol on top of bar.

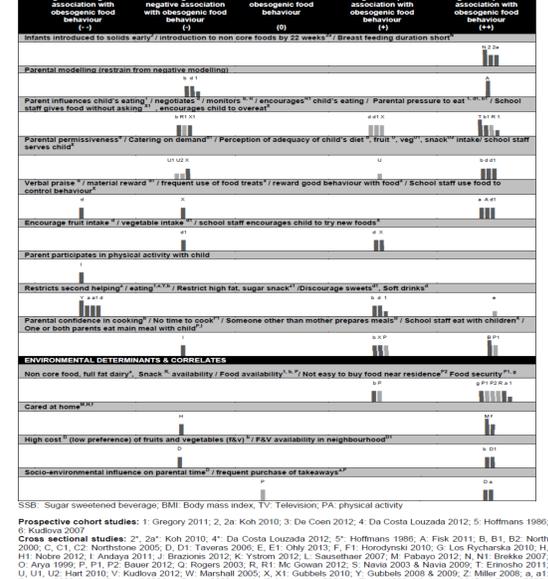
Results: Observational (cohort and cross sectional) evidence

- Six prospective cohort studies identified eight determinants of OFB in preschool children.
 - Determinants - child's age and gender, maternal modelling, child feeding strategies and food availability were associated with increased OFB in young children.
- Cross sectional evidence identified 115 correlates of OFB.
 - Correlates - maternal (young age, low education & income, smoking and obesogenic dietary behaviours), child's (age, gender, eating patterns and TV viewing) and environmental (food availability and food security) were extensively studied and associated with increased OFB.

Determinants and correlates of obesogenic food behaviours in young children: Evidence from observational studies



Significant negative association with obesogenic food behaviour (-); Non-significant negative association with obesogenic food behaviour (-); Not associated with obesogenic food behaviour (0); Non-significant positive association with obesogenic food behaviour (+); Significant positive association with obesogenic food behaviour (++)



Conclusions

- Sustainability and long-term effects of current interventions are unknown and future interventions should consider this.
- Targeting specific environmental and parental determinants/correlates early on in child's life, could potentially reduce sweet snacks and obesogenic meal consumption in young children.
- Due to evidence of clustering of OFBs among mothers and their children, future interventions should target them together.

References

1 De Onis, M. et al, Am J Clin Nutr 2010.
 2 National Child Measurement Programme 2012/13.
 3 Lakshman, R. et al, Systematic Reviews 2013.
 4 Evidence for Policy and Practice (EPPI) Centre Methods for Systematic Reviews. March 2007.
 5 Ogilvie, D. et al., BMC Med. Research Method. 2008.