School food environments and children’s dietary behaviours

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A designated WHO Collaborating Centre for Health Promotion Research
Food environments
Determinants of obesity

• Problem
  – Up to 25% of primary school children and 19% teenagers overweight
    (IUNA, '05, '08, '12; Layte & McCrory, 2009; Heinen et al., 2014)
  – Children not meeting dietary recommendations
    (HBSC '07, '12; IUNA '05; '08)

• Obesity is strongly determined by individual, social, cultural and economic factors and the physical/built environment
  – Children’s weight related to social class – even at age 3yrs
    (Williams et al., 2013)
  – Availability, proximity, choice
    (Morland et al 2002; Layte et al., 2011; Day et al 20110; Timperio et al 2008)
School food environments

- Surge in literature since 2011 on school food environments

- Mostly cross-sectional studies & most focused in N. America

- Area level indicators are most common

- GIS preferred method to assess exposure

- Outcomes: Body weight, diet, purchases

- Evidence is equivocal (Williams et al 2014)
School food environments - Ireland

• **External school food environment**
  – The built environment on food choice/obesity
  – Planning regulations (Nov 2011, April 2014, …)

• **Internal school food environment**
  – Health Promoting Schools
  – Vending machines (April 2015)
Aim

- To examine associations between fast food outlets and youth dietary habits

[Diagram: Children’s lives]

- SES: Gender, Age, Social Class, Ethnicity
- Contexts: Family, School, Peers
- Risk behaviours: Drinking, smoking...
- Health enhancing behaviours: Physical activity, leisure activity...
- Health outcomes: Well being, Life satisfaction, Self-rated health
HBSC Ireland – methodology

• Nationally representative sample of school-aged children in the Republic of Ireland

• Consent from schools, parents & children

• Self-completion questionnaire – students and Principals

• Ethical approval from NUI Galway Research Ethics Committee
Dietary habits - children

• How many days a week do you usually eat or drink?…..
  – Fruit
  – Vegetables
  – Sweets (candy or chocolate)
  – Coke or other soft drinks that contain sugar

• Response options: Never ….. every day more than once…..
Internal school food environment

• Adapted from HBSC school-level questionnaire

• 5 themes, 25 questions
  – School characteristics, Nutrition, PA, Violence/bullying & Neighbourhood
  – Survey monkey or paper-based questionnaires
External school food environment

- 2 km < 30 mins
- 1 km < 15 mins
HBSC
Post-primary Schools

School characteristics
- Urban 61.9%  Rural 38.1%
- DEIS 20.6%  Non DEIS 79.4%
- Girls 17.5%  Boys 22.2%  Mixed 60.3%
Descriptive results

• *Student dietary habits* - daily Fruit (33%); Vegetables (42%); Soft drinks (21%); Sweets (38%).

• *External school food*: For 68% of schools, > 10% of food premises within 1km were fast food

• *Internal school food availability*: Fruit (48%); Vegetables (31%); Sweets (55%); Soft drinks (47%)
Associations between fast food environments and diet $n=5,343$

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<th>Fruit daily</th>
<th>Vegetables daily</th>
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<td><strong>Adjusted Odds Ratios</strong></td>
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<tr>
<td>Food sold in school</td>
<td>0.87</td>
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<td>Rural</td>
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<td>1.04</td>
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<td>&gt;10% fast food within 1km</td>
<td>0.78*</td>
<td>0.79**</td>
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<td>DEIS schools</td>
<td>0.79*</td>
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*p<0.05; **p<0.01; ***p<0.001

*Controlling for age, gender, social class, family food rules*
## Associations between fast food environments and diet $n=5,343$

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Controlling for age, gender, social class, family food rules
Summary

• Poor dietary habits reported by students

• Consider environments that enable healthy choice

  – At school – opportunity to improve food availability/choice
    • Policies, food available, vending machines

  – Outside school – aim for food environments where the healthy choice is the easy choice
Acknowledgements....

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