Promoting Health in an Obesogenic Environment: Challenges and Opportunities

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About ARCH

- Research group within HAHP and the Faculty of Health Professions
- Use a social-ecological approach to understand lifestyle factors influencing health status and health services utilization, in particular those associated with excessive weight gain (obesity)
Social Ecological Model

- Situates the individual within the context of their environment
- Considers the broader impact of physical, economic and social environments
- Population health approach
Overview of Presentation

- Describe some of the challenges encountered over the last (almost) five years and how these were overcome
- Present key research findings that help us to better understand the causes and consequences of the obesity epidemic
- Discuss future opportunities for research, practice and policy to promote health
Some of the challenges…

- Identifying the scale of the problem in NS
- A focus on only one side of the energy balance equation
- A focus on the individual and lack of recognition of the role of the ‘obesogenic’ environment
- A lack of policy evaluation
...and some opportunities

- Lots of data, just not joined together
- Increasing awareness of the food environment and importance of sustainable food systems
- Lots of interest, particularly in applying and evaluating policy options
Challenge 1: Understanding the scale of the problem in Nova Scotia
Obesity rates, by province and sex, 2004

Data source: 2004 Canadian Community Health Survey: Nutrition
* Significantly different from estimate for Canada (p < 0.05)
E Coefficient of variation 16.6% to 33.3% (interpret with caution)
Overweight and obesity rates: children and youth, by province, 2004

Data source: 2004 Canadian Community Health Survey: Nutrition
E Coefficient of variation between 16.6% and 33.3% (interpret with caution)
* Significantly different from estimate for Canada (p < 0.05)
Measuring and monitoring

- CCHS 2004
- Nova Scotia Atlee Perinatal database
- Children’s Lifestyle and School Performance Study (CLASS), 2003
Variation in maternal bodyweight over time, 1988-2006

Kirk et al, 2008 (CPHA oral presentation)
% women in NS classified as underweight (<55kg), normal weight (55-75kg), overweight (>75-90kg) and obese (>90kg) by time period

Kirk et al, 2008 (CPHA oral presentation)
Number of deliveries to severely obese women, 1988-2006

Kirk et al, 2008 (CPHA oral presentation)
CLASS, 2003

- Children’s diets were too low in calcium and fibre, too high in sucrose, fat and sodium
- 1/3 of children were overweight, 10% were obese
- Students with better diets had better school performance
- Students attending health promoting schools had better diets, more physical activity

www.nsclass.ca
CLASS Health Care Use study

Challenge 2: A focus on only one side of the energy balance equation
A question of balance…

Simpler solution = Move More…
## CLASS: Diet quality and health care use

<table>
<thead>
<tr>
<th>Diet Quality Index</th>
<th>Physician costs 2001-06 [CDN$]</th>
<th># of physician visits 2001-06</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Univariate</td>
<td>Multivariate*</td>
</tr>
<tr>
<td><strong>Lowest tertile</strong></td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Middle tertile</strong></td>
<td>0.99 (0.90; 1.07)</td>
<td>1.00 (0.92;1.09)</td>
</tr>
<tr>
<td><strong>Highest tertile</strong></td>
<td>0.92 (0.84;1.01)</td>
<td>0.93 (0.85;1.02)</td>
</tr>
</tbody>
</table>

Exponentiated linear regression coefficients + 95% CI for the association of diet quality and physician costs/physician visits

*Adjusted for gender, household income, parental education and geographic region
Challenge 3: A focus on the individual and lack of recognition of the role of the ‘obesogenic’ environment
Hands up if you...

- Don’t smoke?
- Eat 5 or more portions of fruit or vegetables each day?
- Do 30 minutes or more of moderate to vigorous physical activity five or more times a week?
- Maintain a healthy body weight?
Healthy Lifestyle Characteristics

- Not smoking
- Eating 5 or more fruits and vegetables each day
- Regular physical activity
- Being a healthy weight
- Only 3% of US adults followed all 4 common, modifiable lifestyle characteristics

(Reeves and Rafferty 2005)
A focus on the individual...

- Ignores fundamental changes in our environment and society
- Fails to recognise the complexity of obesity
- Deflects attention from the broader policies that help or hinder individual behaviour change
Weight bias, stigma and blame

- Weight bias and stigma is pervasive in society and impacts on the ability for individuals to manage their weight.
- Focus on individual behaviour as dominant way to address weight management leads to blame, shame and embarrassment, preventing individuals from seeking support.

Eat Less, Move More?
Davison and Birch, 2001
### Identifying the gaps: the ANGELO* framework

<table>
<thead>
<tr>
<th>Type/ Size</th>
<th>Physical “what is available”</th>
<th>Economic “what is the cost”</th>
<th>Political “what are the rules”</th>
<th>Socio-cultural “what are the attitudes and beliefs”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet</td>
<td>PA</td>
<td>Diet</td>
<td>PA</td>
<td>Diet</td>
</tr>
<tr>
<td>Micro “setting”</td>
<td>Availability, convenience, accessibility (Children)</td>
<td>Availability, Parent education level (Children, Adolescent)</td>
<td>Mother’s education level, Family income (Adolescent)</td>
<td>Time spent outdoors, School PA policies (Children)</td>
</tr>
<tr>
<td>Macro “sector”</td>
<td>No consistent factors found</td>
<td>No research</td>
<td>No research</td>
<td>No research</td>
</tr>
<tr>
<td>Parent energy intake (Children)</td>
<td>Sibling energy intake (Adolescent)</td>
<td>Social support and seeing others exercise (Adults)</td>
<td>No consistent factors found</td>
<td></td>
</tr>
</tbody>
</table>


## Identifying the gaps: the ANGELO* framework

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<tbody>
<tr>
<td></td>
<td>BMI</td>
<td>Diet</td>
<td>PA</td>
<td>BMI</td>
</tr>
<tr>
<td>Micro “setting”</td>
<td>54</td>
<td>12</td>
<td>47</td>
<td>14</td>
</tr>
<tr>
<td>Macro “sector”</td>
<td></td>
<td></td>
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Table adapted from Kirk, Penney, McHugh, 2010, Characterizing the obesogenic environment: the state of the evidence with directions for future research, Obesity Reviews, 11, 2, 109-117.

The ENACT* Study

- Collaborative research engaging a broad range of stakeholders
- Research questions:
  - What is the role of the built environment in youth obesity?
  - How can we optimize policy investments in the built environment to address youth PA and healthy eating
- Mixed methods design to capture how youth interact with their environment
- Sample: high vs low SES; urban, suburban and rural

*Environment Nutrition Activity*
ENACT: Preliminary analysis

- Students in low SES urban neighbourhoods engaged in significantly more physical activity
- Students in high SES urban neighbourhoods had significantly better diet quality
- Key finding: parents and youth reported being over-scheduled in ways that limited options for healthy eating
TIME* Study

- Multi-level intervention aimed at:
  - improving family nutrition habits and,
  - incorporating a change in the built environment to increase healthy food availability
- Targeting recreational settings and the families who use them

*Tools, Information, Motivation, Environment
TIME interventions

- **Food environment level:**
  - Changes to the availability of healthy foods served in recreation facilities, where children take part in physical activities

- **Family level:**
  - Primary caregiver will be provided with information about the availability of healthy food choices and personalized nutrition messaging via smartphone technology
Challenge 4: A lack of policy evaluation
CLASS II

- Collected information about provincial and school board policies
- Exploring characteristics of the school environments
- Asked grade five students (and their parents) to complete surveys about their health and health behaviours
- Will allow comparison pre and post policy implementation
Policy work

- CLASS II Policy scan
- Literature review on screen time for the HRM Stepping Up Strategy
- Evaluation of the provincial healthy eating strategy
- Evaluation of the provincial breastfeeding policy implementation
Putting it all together

- Better understanding of the impact of obesity on health status and health care use
- New knowledge of the role of supportive environments where people live, learn or play
- Gaps remain in our understanding of policy and intervention options and are the focus of continuing research
New opportunities

NS childhood obesity strategy

- Opportunity to integrate healthy eating and active living strategies to promote health (multi-component)
- Opportunity for action across the social ecological model (multi-level)
- Opportunity for population intervention research to address these complex problems
- Opportunity to build on existing initiatives and partnerships
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