UVRA Nutrition Series
Session 4 – Dietary Choices:
How Your Food Environment Shapes Your Eating

June 22nd 2021
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Plan for Today

1. Is Victoria a healthful region?
2. Why do we eat unhealthy foods?
3. Why do we want people to improve their diets?
4. What factors are related to healthy food choices?
5. Food accessibility
6. Food advertising
7. Portion distortion
8. Promoting healthful eating
Chart 1: Percentage distribution for the 5 leading causes of death in Canada, 2013

Age group: 1 to 24 years
Number of deaths = 2,622

- Accidents: 36%
- Suicide: 11%
- Cancer: 4%
- Homicide: 4%
- Congenital malformations: 4%
- All other causes: 36%

Age group: 25 to 44 years
Number of deaths = 7,409

- Accidents: 23%
- Cancer: 28%
- Suicide: 17%
- Heart disease: 9%
- Homicide: 4%
- All other causes: 20%

Age group: 45 to 64 years
Number of deaths = 40,996

- Cancer: 43%
- Heart disease: 16%
- Accidents: 6%
- Suicide: 4%
- Liver disease: 4%
- All other causes: 4%

Age group: 65 years and over
Number of deaths = 199,427

- Cancer: 28%
- Heart disease: 21%
- Stroke: 6%
- Chronic lower respiratory diseases: 3%
- Accidents: 5%
- All other causes: 21%

Source: Vital Statistics - Death Database, CANSIM Table 102-0561.
High blood pressure: 15.3%;
  • similar to BC (15.6%); & similar to Canadian avg. (17.7%).

Diabetes: 4.6%;
  • similar to BC (5.5%); & similar to Canadian avg. (6.6%).

Body mass index, self-reported, overweight or obese: 45.9%;
  • similar to BC (47.4%); & lower than Canadian avg. (53.8%).
Health in Victoria (2013-2014)

Fruit & vegetable consumption, 5+/day: 41.5%;
  • similar to British Columbia (40.2%); & Canadian avg. (40.2%).

Physical activity during leisure-time, moderately active or active: 69.4%;
  • higher than BC (62.9%); & Canadian avg. (54.4%).

Heavy drinking: 20.9%;
  • higher than BC (16.5%); & similar to Canadian avg. (18.4%).

Current smoker, daily or occasional: 15.6%;
  • similar to BC (15.3%); & lower than Canadian avg. (18.7%).

Life satisfaction, satisfied or very satisfied: 92.3%;
  • similar to BC (91.6%); & to Canadian avg. (92.0%).

Sense of belonging to local community, somewhat strong or very strong: 68.7%;
  • similar to BC (69.9%); & to Canadian avg. (66.2%).
Health in Victoria (2013-2014) [1]

Perceived health, very good or excellent: 62.6%;
• higher than BC (58.0%); & similar to Canadian avg. (59.2%).

Perceived mental health, very good or excellent: 74.2%;
• higher than BC (68.4%); & similar to Canadian avg. (71.1%).

Perceived life stress, quite a lot: 20.2%;
• similar to BC (22.8%) & Canadian avg. (23.0%).
Why we can't stop eating unhealthy foods

https://www.youtube.com/watch?v=wTNHyjip94
Issues

How to curb the 66,000 deaths annually in Canada attributed to nutrition-related heart attacks, strokes, diabetes, & cancers?

Considerations:
• Food deserts (i.e. security/insecurity)
• Food environments: marketing & portion sizes
• Obesity
• Population Health Initiatives
Social Determinants & Inequities Related to Healthy Eating

Direct Influences:
- Food Systems
  - Agriculture
  - Trade
  - Retail
  - Ads
  - Etc
- Social Determinants
  - Accessibility
  - Norms
  - Policies
  - Income
  - Education
  - Cultural Values

What is a community food system?

Source: University of Idaho
Food Security or Insecurity

Definition:

The inability to acquire or consume an adequate diet quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so.

Some Stats:

• 7% of Canadians can not afford balanced (healthy) meals.

• 11.5% either did not have enough food or not enough of the right kind of food for a healthy diet.

• Food bank reliance is on the rise across Canada.
Food Banks Canada

FoodBanksCanada.ca
FIRST CHOICE: GO HUNGRY OR GO TO THE FOOD BANK

Each and every month, hundreds of thousands of Canadians access food banks to make ends meet.

- **863,492** people were helped by food banks in March.
- **36%** are children and youth.
- **28%** is higher than 2005.
- **8 of 10** provinces saw an increase.

SECOND CHOICE: LOW-PAYING WORK OR INADEQUATE BENEFITS

Both working and unemployed Canadians are helped by food banks.

- **1 in 6** households helped are currently or recently employed.
- **18%** are on disability-related income supports.
- **45%** are on social assistance.
- **8%** live on a pension.

THIRD CHOICE: FOOD OR RENT

The high cost of housing is a key driver of food bank use.

- **66%** pay market-level rents.
- **20%** live in social housing.
- **8%** own their home.
- **5%** are homeless.

FoodBanksCanada.ca
Food Banks & Community Kitchens

- Relatively new to Canada since early 1980s to address food insecurity.
- Nutritional value of products in food banks are questionable; rarely offer fresh produce.
- Community kitchens can enhance food literacy & food security, but are often limited in sustainability, scope & reach.

- [https://rainbowkitchen.ca/](https://rainbowkitchen.ca/)
Food ‘Deserts’
Walker et al., 2010. Health & Place, 16, 876-884

The influence of neighbourhood (SES & physical/built environment) on food choices: limited or no access to affordable fresh foods, produce.

High availability & affordability of fast food, convenience, tobacco & alcohol outlet products.
Food deserts result from

- Unsafe neighbourhoods & lack of public transit/walking routes to travel to supermarkets.
- Non-chain stores, food theft, sale of brand products & smaller packaging drives up food costs.
- Sense of loyalty to small businesses in the community.
Food Environments

Influence ‘choice’ through price, marketing & built environment:

- [http://cerealfacts.org/](http://cerealfacts.org/)

Unhealthy checkouts: A field study in Washington DC of 30 checkout aisles – grocery, hardware, toy, electronic, convenience retailers

- [https://cspinet.org/resource/fact-sheet-sugar-overload](https://cspinet.org/resource/fact-sheet-sugar-overload)

- 86% of non food stores offer food at check out
  - 90% of which are unhealthy: candy, gum, energy bars, chips & cookies
  - 2% are considered healthy

At the ‘local’ hardware store checkout line
Measured 65 cereal boxes with 86 different spokes-characters:
  • 57 of the characters were directed at children, 29 toward adults.

Using trigonometry, angle & height of characters’ eye gaze was measured to determine the necessary height of the consumer for he/she to make eye contact with the cereal box character.

Results

Inflection angle of spokes-characters’ gaze on children’s cereal boxes was slightly downward (-9.67°).

On adult cereal boxes was “straight ahead” (0.43°).

Children’s cereals tended to be placed on the bottom two shelves of a display, while adult-oriented cereals were placed on the top two shelves.

Eye-contact is used as an advertising technique to help companies improve consumer feelings of connection to a brand.
Integrated Marketing

- Packaging
- TV
- Web
- Sales Points
- School Promos
- Sporting Events
Portion Size

Portion size influences:
• Weight
• SES
• Profession*
• Package size
• Serving size
• Dishware size

*Even dietitians have been found to inaccurately estimate calories from large portions!
Portion Size

Portion size may also influence consumption regardless of hunger:

• Moviegoers having just finished lunch were randomly given a free medium or large size bucket of *stale* popcorn.
• Despite not being hungry & having stale popcorn, those with the large bucket ate 51% more than those with the medium buckets.

Portion size creates ‘*consumption norms*’ & affects ability to accurately estimate calories.
Figure. Why portion sizes lead us to overeat.
People sent home with a video

- 1 or 2 pound bag of M&M’s
  AND
- A medium or jumbo tub of popcorn for EACH member of the family

Results:

- 1 pound M&M’s: ate 112
- 2 pound M&M’s: ate 156
- Both ate ½ tub of popcorn
  - medium or jumbo
## Hershey Kisses
### Eaten By Office Staff

<table>
<thead>
<tr>
<th>Position</th>
<th>Clear Bowl</th>
<th>Opaque Bowl</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Desk</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>6ft. Away</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

## Baby Carrots in a Waiting Room
### (# eaten over 15 minutes)

<table>
<thead>
<tr>
<th>Position</th>
<th>Large Bowl</th>
<th>Small Bowl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Given to Customer</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Placed in Corner</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Wansink et al.
Appearance Matters

• Larger portion = 30% more consumption
• Portion size is habit
• Portion size can be decreased by 25% with same satiety
• Decreasing caloric density by adding water e.g. stews, soups, etc.
• Adding fruit and Vegetables decreases caloric density but maintains volume

Rolls, B.J., Ello-Martin, J.A., Tohill, B.C. 2004
Rolls 2
Portion Distortion

Quiz time!

How many servings of grain products are in a foot-long submarine sandwich bun?
Quiz time!

How many servings of grain products are in a foot-long submarine sandwich bun?

SIX! (5-12 servings/day recommended)
Portion Distortion

How many servings of meat in a ¼ pounder hamburger patty?
Portion Distortion

How many servings of meat in a ¼ pounder hamburger patty?

TWO! (2 servings per day recommended)
Portion Distortion

How many grain servings are in a spaghetti dinner at a typical ‘family-style’ restaurant?
Portion Distortion

How many grain servings are in a spaghetti dinner at a typical ‘family-style’ restaurant?

SIX! (5-12 servings/day recommended)
→ approximately 2000 Calories or one day worth for an average adult
Portion Sizes Change with Time

1990
5 cups or ~1.25 Liters

2020
11 cups or ~2.75 Liters
Serving Sizes in 1955 & 2020

- 1955: Fries 72g, Coke 200ml
- 2020: Fries 205g, Coke 950ml
Calorie Difference: 165 Calories
Typical Daily Caloric Requirement ~2000 Calories
Liquid Candy

How much sugar are teens consuming in a day?

15 - 20 tsp

How about in a year?

22 - 29 kg

Enough calories to gain 30 pounds of body fat per year

Typical is ~22 lbs from age 20-40 years

Jacobson MF, Liquid Candy CSPI, 1989

Source: Diabetes in Canada 2011: PHAC, Figure 4-3.
Figure 1. Trends in childhood obesity among children and adolescents aged 3–19 in Canada and the United States

<table>
<thead>
<tr>
<th>Year</th>
<th>United States</th>
<th>Canada</th>
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<tbody>
<tr>
<td>1976–1980</td>
<td>5.6</td>
<td>5.0</td>
</tr>
<tr>
<td>1978–1979</td>
<td>12.4</td>
<td>13.0</td>
</tr>
<tr>
<td>2001–2004</td>
<td>16.6</td>
<td></td>
</tr>
<tr>
<td>2009–2012</td>
<td>17.5</td>
<td></td>
</tr>
<tr>
<td>2009–2013</td>
<td></td>
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</tr>
</tbody>
</table>

1Statistically significant difference compared with Canada, p < 0.001.

NOTE: Pregnant girls are excluded.

Obesity: The largest observable effect

Adults who are overweight or obese

2009/2010
by health region
Population aged 18 and over who reported height and weight that classified them as overweight or obese
Compared to the national average of 52%

Source: Canadian Community Health Survey, 2009/2010 (CANSIM Table 105-0502).
Produced by Geography Division, Statistiques Canada, 2011.
Obesity & SES

Rates of obesity are higher among lower SES citizens globally than those of higher SES

- Especially more pronounced among women & children.
- Observations hold across different measures of SES: education, occupation, area of residence, income.

Teach every child about food | Jamie Oliver

https://www.youtube.com/watch?v=go_QOzc79Uc
Population Health Initiatives

“Fat taxes”

The Danish experiment (Bødker et al., 2015): introduced the world`s first tax on saturated fat in 2011;

• Repealed 15 months later for political more than public health concerns
  • Negative media coverage; increase in price of foods or shrinking of sizes to cover tax; industry claimed loss of jobs; intense lobbying by industry & little involvement of public health experts.

Removal of trans-fats

• June 2015 - US federal regulations have set a compliance period of 3 years to allow food manufacturers to reformulate products.
Nutrition & Menu Labelling

Until 2002, no requirement to list ingredients or nutritional information - optional for marketing purposes

Issues related to health literacy;
1. Complicated
2. Back of package
3. Hard to read & decipher.

Health Canada Food Label Quiz
If you were in charge of changing nutrition labels, what would you change?
What is still missing from the labels?
How to optimize health labeling?

British Study looking at colour of labels & emoticons/emojis

Frowning emoticons had a greater impact than smiling emoticons at signalling the healthiness & tastiness of cereal bars
  - A snack food often incorrectly thought to be healthier than it is.

How to address inequity in healthy eating?

I. Socio-political and cultural factors:
1. Nutrition Specific Policies
2. Economic Instruments
3. Food Labelling
4. Food reformulations
5. Food relief and aid focused on healthy options
6. Societal norms (celebrity, ads, social marketing?)
How to address inequity in healthy eating?

II. Daily Living
1. Physical Environment
2. Employee control
3. Information via health care providers
4. Early Childhood Education

II. Individual
1. Skill building and nutrition education
2. Public awareness campaigns
Promoting Healthy Eating

Review of 112 studies that collected information about healthy eating behaviours & found that most healthy eaters did so because:

1. A restaurant, grocery store, school cafeteria, or spouse made foods like fruits & vegetables visible & easy to reach (convenient);
2. Enticingly displayed (attractive);
3. Appears to be an obvious choice (normal).

“It is much easier for a person to change his or her environment than to change his or her thinking”, in reference to portion size & overeating.

USE THE C.A.N. APPROACH TO BECOME SLIM BY DESIGN

CONVENIENT
- TO SEE
- TO ORDER
- TO PICK UP
- TO CONSUME

ATTRACTIVE
- NAME
- APPEARANCE
- PRICE
- EXPECTATIONS

NORMAL
- TO ORDER
- TO PURCHASE
- TO EAT

© WANSINK (PSYCHOLOGY & MKTG 2015); WANSINK (SLIM BY DESIGN 2014)