NUTRITION LABELLING INTERVENTION IN UNIVERSITY CANTEENS: EFFECTS ON MEAL CHOICE AND NUTRIENT INTAKE

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Wim Verbeke & John Van Camp
Ghent University, Belgium
“OUT OF HOME” vs. “AT HOME” EATING

Food retail

Out of home

On the move

Social catering

On premise

Commercial catering

At home

Ready to eat

Home processed

Home prepared

9th International MAPP Workshop on Consumer Behaviour and Food Marketing, Middelfart, May 2011
EATING OUT associated with BODY FATNESS and LOWER DIET QUALITY

ORIGINAL ARTICLE

Eating out, weight and weight gain. A cross-sectional and prospective analysis in the context of the EPIC-PANACEA study

A Naska1,2, P Orfanos1,2, A Trichopoulou1,2, AM May3,4, K Overvaal1,6, MU Jakobsen1, A Thømmelund7, J Halkjaer7, G Fagherazzi1, F Clavel-Chapelon8, M-C Boutron-Ruault9, S Rohrmann5, S Hermann5, A Steffen8, J Haubrock10, E Oikonomou11,2, V Dills12, M Katsoukis12, C Sacerdote11, S Sieri11, G Masala13, R Tumino14, A Mattiello15, HB Bueno-de-Mesquita16, G Skeie16, D Engeset16, A Barricarte17,18, L Rodriguez19, M Dorronsoro17,20, M-J Sanchez17,21, M-D Chirlaque17,22, A Agudo17, J Manjer23, E Wirfält23, V Hellstroem24, D Shungin25,27, K-T Khaw26, NJ Wareham26, EA Spencer26, H Freidling26, N Slimani11, A-C Vergnaud26, T Mouw21, D Romaguera21, A Odysseos33 and PHM Peeters3,32

Fast-food consumption among US adults and children: Dietary and nutrient intake profile

SAILASHKORN BABPATANKUL, MD, PH, RAPHAEL P. FERDINANDA, MN, RN, CATHERINE M. CHAMPAGNE, RD, PHD, DONNA H. RYAN, MD, GEORGE A. BRAY, MD

Away-from-home Food Intake and Risk for Obesity: Examining the Influence of Context

Gundánpae A. Ayala1, Morgan Rogers1, Enia M. Arredondo1, Nadia K. Campbell1, Barbara Baquero1, Susan C. Duerksen2 and John P. Elder1

Frequent use of staff canteens is associated with unhealthy dietary habits and obesity in a Norwegian adult population

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OUT OF HOME FOODS associated with ...

... larger portion sizes

... insufficient amount of vegetables

... higher contents of energy, fat, salt

... mostly no nutrition information
Can nutrition information on canteen meals help consumers to improve their meal choice and nutrient intake?

What explains differences in effectiveness of the nutrition information?

1. Individual characteristics
   Pre-post nutrition information intervention study

2. Label format characteristics
   Choice experiment

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STUDY 1 - Pre-post nutrition information intervention design

Baseline
Oct ‘08  Nov ‘08  March ‘09  Apr ‘09  May ‘09

Follow-up

Label

Step 1
- Recruitment
- 3-day food diary
- 3-day PA diary
- Consumer survey

Step 2
- 3-day food diary
- 3-day PA diary
- Consumer survey

Step 3

<table>
<thead>
<tr>
<th>Endives with ham and cheese € 3,60</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 + rice + endives/Spanish vegetable mix</td>
</tr>
<tr>
<td>2 + potato + Spanish vegetable mix</td>
</tr>
<tr>
<td>3 + mashed potato + endives/Spanish vegetable mix</td>
</tr>
</tbody>
</table>

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STUDY 1 - Sample characteristics

- Belgium, Flanders
- Ghent University
- Two canteens
- n = 224 respondents
- ♂: 74%
- ♀: 26%
- Age 17-35
- Students
- Canteen customers
Nutrition information on meals in university canteens does not influence meal choice and nutrient intake

**Number of meals by star rating**

- 0 stars
- 1 star
- 2 stars
- 3 stars

**Intake from canteen meal**

- Energy (kcal)
- SAFA (g)
- Na (*10 mg)
- Vegetable (g)

Baseline vs Follow-up
STUDY 1 - Model

Multi-group structural equation modeling analysis (LISREL 8.72)
STUDY 1 - Results

- Total sample (n = 220)
STUDY 1 - Results

- Low knowledge and high intention (n = 70)

Diagram showing the relationships between liking of label, use of label, change in subjective knowledge, change in attitude, and change in energy intake.
High knowledge and high intention (n = 44)
STUDY 1 - Conclusion

- The proposed model contributes to a better understanding of **HOW** nutrition labels influence determinants of meal choices and for **WHOM** it is effective

  - **HOW ?**
    - Those who like and understand the label better
    - Use the label more often and more effectively
    - Are more likely to change their attitude towards healthy meals and their meal choice (behaviour)

  - **FOR WHOM ?**
    - Higher motivation to change diet
    - Sufficient objective nutrition knowledge
## STUDY 2 – Choice experiment design (1)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Levels considered</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GDA information</strong></td>
<td>- Basic (energy)</td>
<td>Calories 713</td>
</tr>
<tr>
<td></td>
<td>- Detailed (energy, sugar, fat, saturated fat, salt, vegetable)</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>- None</td>
<td></td>
</tr>
<tr>
<td><strong>Star rating</strong></td>
<td>- Without verbal descriptor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- With verbal descriptor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- None</td>
<td></td>
</tr>
<tr>
<td><strong>Price</strong></td>
<td>- 3.00 €</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 3.25 €</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 3.50 €</td>
<td></td>
</tr>
</tbody>
</table>
Example of a choice set

Choice set 1

Label A

For a 625 g PASTA DISH:

3.00 €

Label B

For a 625 g PASTA DISH:

3.50 €

Neither label A, nor label B

Calories: 713
Sugars: 6 g
Fat: 18 g
Saturates: 9 g
Salt: 4 g
Vegetables: 123 g

% of an adult’s guideline daily amount (GDA)

Which label do you prefer?
STUDY 2 - Sample characteristics

- Belgium, Flanders
- Ghent University
- BSc, MSc, PhD students
- n = 1725 respondents
- ♀: 67%
- ♂: 33%
- Mean age = 23 (SD 4)
STUDY 2 - Results

Path-worth utilities per attribute level

-1.0 -0.8 -0.6 -0.4 -0.2 0.0 0.2 0.4 0.6 0.8 1.0

Attribute level

Basic GDA
Detailed GDA
Basic Star
Detailed Star
Price
Basic GDA x Basic Star
Basic GDA x Detailed Star
Detailed GDA x Basic Star
Detailed GDA x Detailed Star

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STUDY 2 - Results

**GDA label**

- Calorie: 713
- Sugars: 6g
- Fat: 18g
- Saturates: 9g
- Salt: 4g
- Saturates: 123g

**Star rating label**

- Calorie: 713
- Sugars: 6g
- Fat: 18g
- Saturates: 9g
- Salt: 4g
- Saturates: 123g

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Consumers value the presence of nutrition labels on canteen meals.

Detailed nutrition labelling formats are preferred.

Basic GDA-type of numerical information combined with interpretational visual aids like stars and colour codes is proposed.

Signals of information insufficiency and information overload are observed.

Socio-demographics, ability and motivation to process information influence label preferences.
Take home message

Simplified nutrition labels on out-of-home foods ...

- A step forward towards healthier food choices IF
  - Consumers
    - like the label format,
    - understand the label,
    - are motivated to change their diet,
    - have sufficient objective nutrition knowledge.
  - The label
    - contains neither too much detailed nor too much simple nutrition information,
    - contains basic GDA-type of information combined with interpretational visual aids.

- Only one of several policy instruments for public health initiatives, programs and food-related policies to combat bad dietary behaviour and obesity.

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Thank you for your attention!