Effect of health labelling on expected and actual taste perception of cheese

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Objectives

The frequency of heart disease and hypertension is increasing throughout the world and one of the reasons is a shift towards a more unbalanced diet which includes a higher salt and fat intake. As a growing group of consumers are becoming more conscious with the health aspects of their diet new food products have been developed which could feed those needs and contains for instance less salt and fat. These food products often contains front of pack labelling (i.e. reduced in salt, 'light',…) so that consumers are better aware of its composition or its reformulation. However, one drawback is that consumers often associate changes in a particular ingredient as for instance salt with a reduction in taste quality. The purpose of this study was threefold.

- First, to examine the influence of health labels 'reduced salt content' and 'light' on the expected and perceived sensory evaluation of cheese.
- Next, to investigate which emotional conceptualizations consumers associate with such messages.
- Lastly, this study wants to explore if there are associations between consumer attitudes and the emotional and sensory profiles of labelled cheese.

Materials & methods

PRODUCT:

Young gouda cheese

LABELS:
- Cheese ("control")
- Light cheese ("light")
- Reduced salt cheese ("reduced salt")
- Light cheese with reduced salt ("light + reduced salt")

CONSUMER TEST
- Attitude and behaviour
  - Eating habits of cheese: consumption and preference of type of cheese, frequency of consumption
  - Shopping behaviour, attitudes and awareness of personal salt and fat intake
  - Health and Taste Attitude Scale (HTAS): General health intake, light product interest and reduced salt product interest

- Sensory evaluation
  - 2 conditions: expected and perceived (same cheese)
  - Overall liking, salt intensity fat flavour intensity
    - 7-point scale
  - Emotional conceptualizations and sensory attributes
    - Rate-all-that-apply
    - 5-point intensity scale (very weak – very strong)

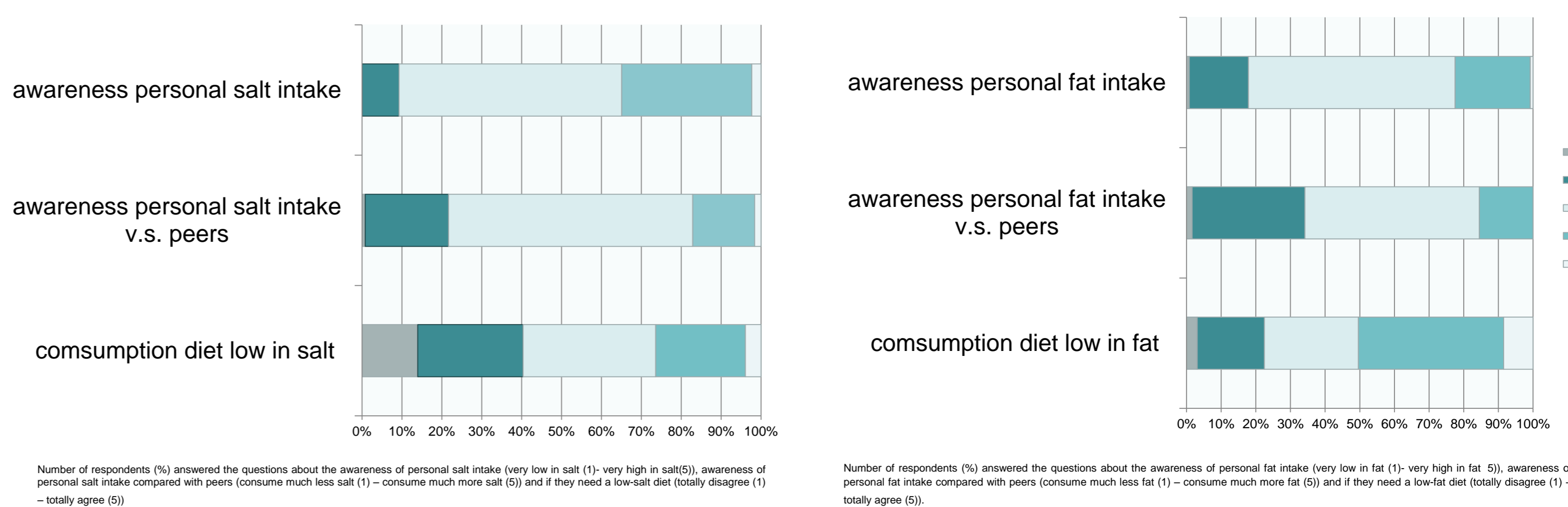- Socio-demographic
  - age, gender, place of living

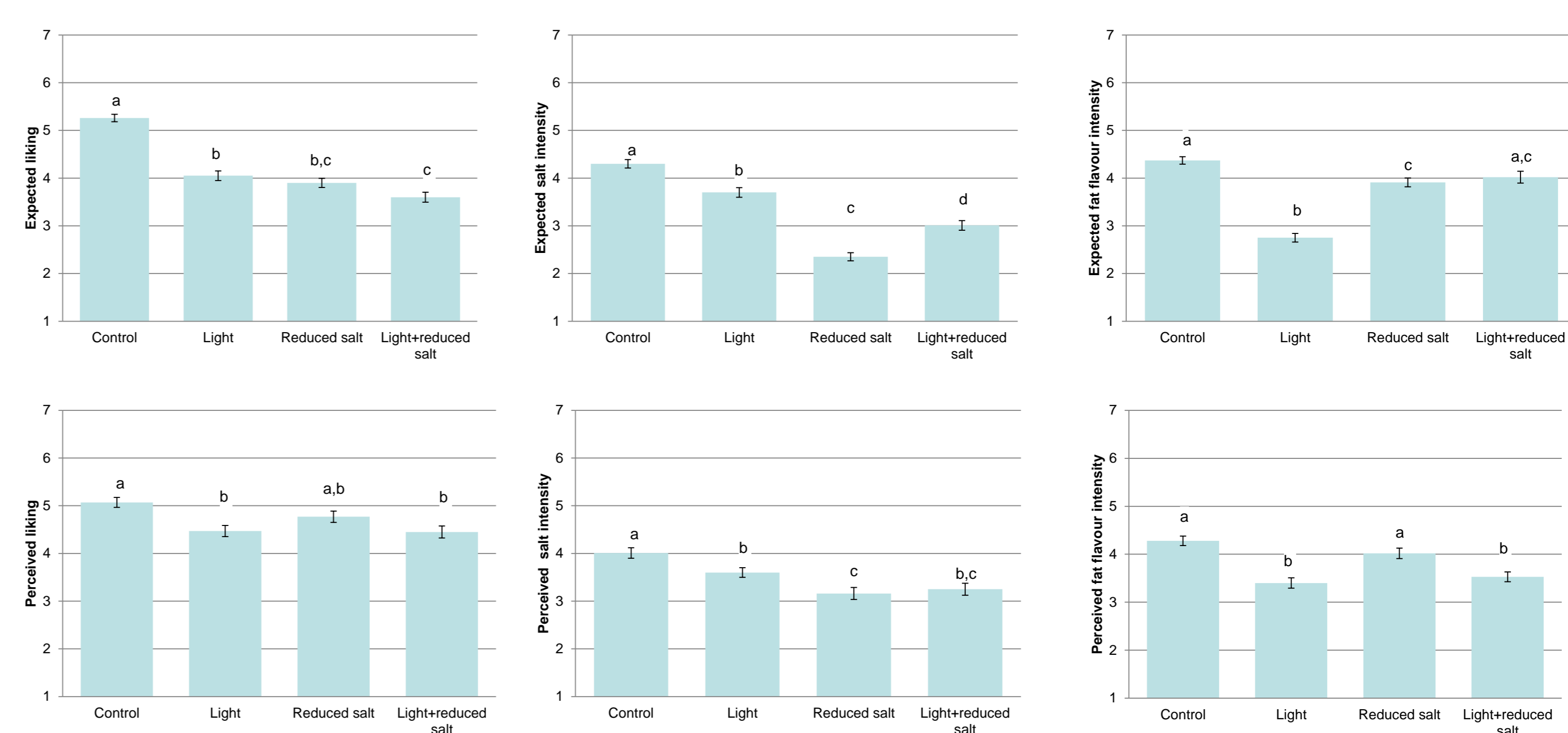STATISTICAL ANALYSIS: IBM® SPSS 22

RESPONDENTS
- 129 Belgian subjects (47% ♂, 53% ♀)
- Mean age: 24.9 years (SD = 9.5)

Roininen, K., Lähteenmäki, L., & Tuorila, H. (1999). Quantification of consumer attitudes to health and hedonic characteristics of foods. Appetite, 33(1), 71-88. .

Results

AWARENESS OF SALT AND FAT INTAKE

Number of respondents (%) answered the questions about the awareness of personal salt intake (very low in salt (1)- very high in salt(5)), awareness of personal salt intake compared with peers (consume much less salt (1) – consume much more salt (5)) and if they need a low-salt diet (totally disagree (1) – totally agree (5))

Number of respondents (%) answered the questions about the awareness of personal fat intake (very low in fat (1)- very high in fat 5)), awareness of personal fat intake compared with peers (consume much less fat (1) – consume much more fat (5)) and if they need a low-fat diet (totally disagree (1) – totally agree (5)).
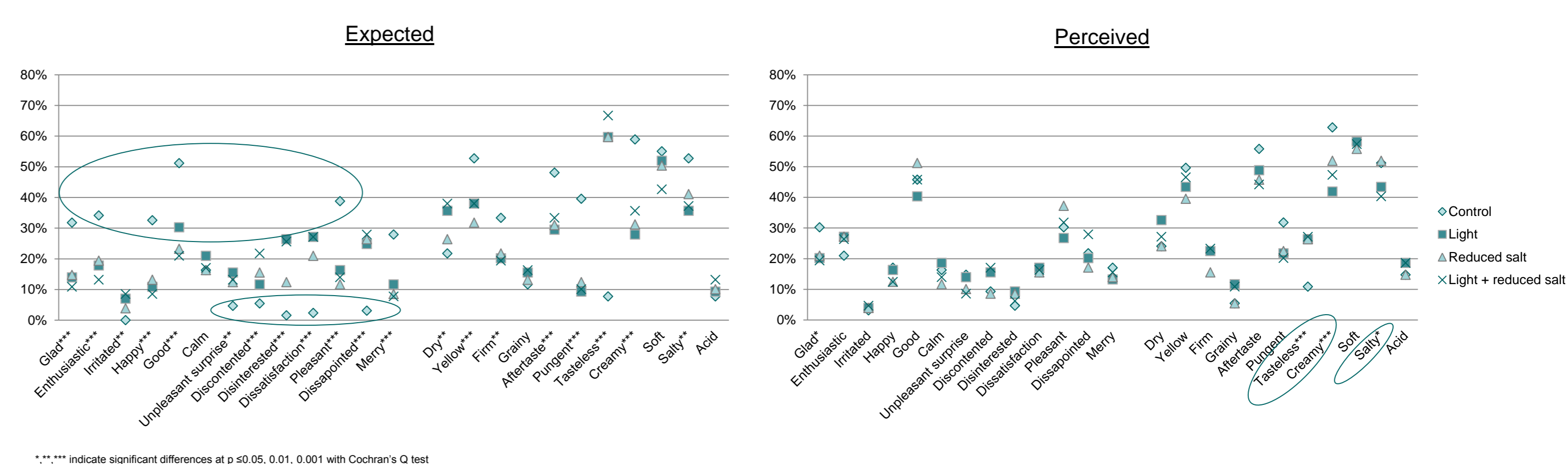
ACCEPTANCE, SALT INTENSITY AND FAT FLAVOUR INTENTISITY

Bars within a panel with the same letters do not differ significantly (p ≤ 0.05). Repeated measures ANOVA and Bonferroni posthoc analyses.

SENSORY AND EMOTIONAL PROFILES

*,**,*** indicate significant differences at p ≤0.05, 0.01, 0.001 with Cochran's Q test

Health attitudes

	Mean	SD
General health interest (GHI, Cronbach's α=0.84)	4.2	1.1
I am very particular about the healthiness of food.	4.2	1,4
I always follow a healthy and balanced diet.	3.9	1.4
It is important for me that my diet is low in fat.	4.1	1.4
(R) I eat what I like and I do not worry about the healthiness of food.	4.3	1.5
(R) The healthiness of food has little impact on my food choices.	4.7	1.6
(R) The healthiness of snacks makes no differences to me.	4.4	1.6
(R) I do not avoid any foods, even if they may raise my cholesterol.	3.7	1.5
Light product interest (LPI, Cronbach's α=0.78)	3.8	1.0
(R) In my opinion light products don't help to drop cholesterol levels	4.0	1.3
I believe that eating light products keeps one's body in good shape.	3.2	1.4
In my opinion by eating light products one can eat more without getting too many calories.	3.3	1.4
(R) In my opinion, the use of light products does not improve one's health.	4.0	1.4
(R) In my opinion light products don't help to drop cholesterol levels.	4.4	1.3
(R) I do not think that light products are healthier than conventional products.	3.8	1.5
Reduced salt product interest (RSPI, Cronbach's α=0.72)	5.1	1.0
(R) In my opinion, the use of reduced salt products does not improve one's health.	5.0	1.2
(R) In my opinion reduced salt products don't help to drop blood pressure levels.	5.2	1.2
(R) I do not think that reduced salt products are healthier than conventional products.	5.0	1.2

(R) = negative statement which scores has been recoded for the data analysis, scale 1= disagree strongly and 7= agree strongly

Correlations

+ GHI and perceived fat flavour intensity of the control labelled cheese (r_s(127)=0.224, p=0.005)

+ LPI and perceived overall liking of the light labelled cheese (r_s(127)=0.186, p=0.034)

-RSPI and perceived overall liking of the control labelled cheese (r_s(127)=-0.226, p=0.010)

-RSPI and the perceived salt intensity of the light + reduced salt cheese (r_s(127)=-0.183, p=0.037)

Conclusions

✓ Health labels could influence the overall acceptance and sensory perception of label-related attributes.

✓ No influence of reduced salt label on the overall acceptance when tasting cheese.

✓ Consumers associate more positive emotional conceptualizations towards the control labelled cheese during the expected condition. But those differences tend to go away when actually tasting the (same) cheese.

✓ Including consumer behaviour questions could provide additional background information on the emotional and sensory profiling of food products.

Practical applications:

Although producing food products which are better nutritional balanced is popular, companies should be aware that communicating in means of front of pack labelling is not always advisable and could influence consumers' taste perception.