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## **Facilitating healthy choice at the point of sale: fine-tuning nutrition labels versus editing choice?**

### Abstract

Obesity rates in Europe have led to a debate on what factors influence consumers' in-store food choices most. This study aims to assess the contribution of nutrition labels against the impact of choice sets to facilitating healthy decision-making. Different front-of-pack labeling formats were implemented on products that were presented to representative consumer samples. Choice sets and product categories were systematically varied. The results indicate that nutrition information in general contribute only little, while extending choice sets with healthier product alternatives of the same category – i.e., 'choice editing' – largely contributes to healthy decision-making.

## **Introduction**

Alarming obesity rates among European citizens (WHO, 2007) have sparked a debate about the reasons for, and consequences of, this trend. Many influencing factors seem to be involved and a diversity of strategies for counteraction has been suggested. Food marketing is one area that has been heavily criticized recently (Nestle, 2006; Seiders and Petty, 2004). For example, it has been argued that marketing communication emphasizes the healthy characteristics of food products, while it leads attention away from unfavorable, more nutrition-relevant characteristics. All in all, it appears that companies' marketing efforts are focused too much on products that are high in sugar, fat or salt. At the same time, today's food producers claim to be committed to the goal of helping consumers make healthy food choices. They voluntarily take actions such as advertising restrictions, displaying nutritional information and conducting food reformulation and innovation.

Food producers are however only one player in the commercial food sector, an increasingly influential actor in the supply chain is the retailer. Retailers largely decide about which foods and brands reach the shelf in the supermarket, and how they are placed, priced and presented. With the rise of private food labels, they determine the actual characteristics of a growing number of products, and conduct own product and brand related marketing. Many large retail chains have also build up a corporate brand. Just like food producers, retailers have also set themselves objectives and phrased strategies in order to live up to the responsibility they have with regard to shaping health-promoting environments for European citizens. These encompass amongst others nutritional requirements for products sold in the stores, especially under their own private labels, displaying nutritional information on products or within the

store, and conducting promotion activities for healthy food or social marketing efforts for healthy eating or lifestyles.

The retail environment plays a crucial role in everyday food decision making. A large share of consumers' final product decisions are made in front of supermarket shelves (Block and Morwitz, 1999; Groeppel-Klein and Bartmann, 2009). Therefore, facilitating healthier food choices at the point-of-sale is given high priority (Golan et al., 2001, Baltas, 2001). These product or brand decisions made at the point of sale are crucial, because the food bought will be consumed later; however, consumers spend little time looking for information. An in-store observation study shows that consumers on average spend 35 s until they make a food product decision (Grunert et al., 2010).

It is important to support consumers in their decisions in the 'right moment' with the 'right information' – but also with the right products to choose from. This major distinction between providing information in order to allow 'informed choice' versus shaping the environment so that the 'healthy choice is the easy choice' is in the focus of the research results presented in this article. To date, there has been little research combining the two options and analyzing the behavioral consequences of the two options. This study therefore aims to find out (1) whether nutrition labels, systematically varied with regard to three labeling elements (color coding; textual description of the levels of nutrient content, i.e. high, medium, or low; Guideline Daily Amount (GDA) reference), help consumers make healthy food choices, and (2) to what extent variations in the choice set offered to consumers affect healthy decision-making.

## **Promoting healthy eating via nutrition labeling and choice sets**

Different efforts for improving consumer's healthy choices and healthy eating are often discussed in terms of availability, accessibility and affordability. Displaying easily available and accessible, thus understandable nutritional information is one of the options discussed. Considerable research is dedicated to analyzing the influence of nutritional information on consumers' understanding of a product's healthfulness and their buying behavior (Cowburn and Stockley, 2005; Drichoutis et al., 2006; Grunert and Wills, 2007). Recent research looks at how nutrition labels should be designed and placed onto the product packages in order to be noticed and understood by consumers, and to be effective in facilitating healthy food choices (cf. van Herpen and van Trijp, 2011). However, to date, there is no consensus about which labeling format and what elements of nutritional labels help consumers best to make healthy choices.

Shaping the choice environment in a favorable way in order to improve the accessibility of healthy choice options and thus increase the likelihood of choosing healthier options is another option that has received renewed interest lately (Thaler and Sunstein, 2008; Verplanken and Wood, 2006). Consumers' conscious awareness is not needed when choices are edited, and the behavioral effects may be observed even when the levels of information processing are low. This strategy may then alter consumers' habits and 'nudge' them towards healthier choices.

Changing one's own behavior requires internal motivation, the ability to act accordingly, and the opportunity – as determined by external factors - to make a healthier choice. This has been

also described as the ‘MAO’ factors (van Raaij, 2002). Nutrition labels aim at providing consumers with the tool to make informed healthy choices. Thus, – ideally –, they strengthen consumers’ ability in the sense that they make nutrition information easier to notice, find, read and interpret. However, their presence or non-presence determines consumers’ opportunity to do so in the first place. In any case, nutrition labels need the consumers’ motivation as a prerequisite to being of any use for promoting healthy eating. The responsibility of action rests very much with the individual consumer in what Verplanken and Wood (2006) also call a ‘downstream’ approach to intervening for healthier food choices.

Among the measures discussed for healthy eating promotion, nutrition labels are classified as ‘information measures’, as opposed to fiscal measures or those destined to affect availability (Mazzocchi and Traill, 2005). While informational approaches need consumer’s motivation, availability approaches target contextual influence factors on behavior based in the structure of the consumer’s environment. The suggestion to intervene by structural changes aims at preventing or changing unfavorable habits. While some availability measures such as banning of vending machines (Mazzocchi and Traill, 2005) are forcing consumers to change behavior, the idea of ‘nudges’ is to avoid forced behavior change. ‘Nudges’ are defined as “any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives” (Thaler and Sunstein, 2008). Suggestions for structural change move the responsibility of action ‘upstream’ (Verplanken and Wood, 2006).

Food producers and especially food retailers can take actions in both areas, facilitating consumers informed choice by e.g. providing the information on products as well as by altering products, assortments and the way products and assortments are marketed and

presented. The empirical study presented in the following allows assessing the relative importance of the two options for healthy-decision making.

## **Methodology**

### *Participants*

A representative sample of 1,100 German and Polish consumers was surveyed in a hall test in June 2011 (see table 1). The respondents were presented with sweet and savory snack foods to choose and asked a number of survey questions face to face. The experimental design of the all in all four choice tasks included both between-subject factors, i.e. the combinations of label formats, and within-subject factors, i.e. the choice set offered.

(insert table 1)

### *Design in between subjects*

A basic label consisting of key nutrient and energy information combined with a simple health was shown on all products except for the products in the control group. The health logo was only present the product examples that were relatively healthier, otherwise the space was left empty. The label format was varied in that it was combined with additional elements, following a fractional factorial design (see table 2). The labeling elements of color coding and textual description of the levels of nutrient content – i.e., high, medium, or low –, as well as GDA reference were chosen because they are discussed frequently among stakeholders. They have also been in the focus of earlier research (FSA, 2008). All participants saw only one nutrition label format on the products when they made their various decisions.

### *Design within subjects*

The ‘choice editing’ was manipulated as follows: Respondents were asked to choose twice, first among 10 products, then among 20 products, including the first set. The product category was the same, but relatively healthier products were added in the second step. Respondents decided according to their preference, choosing the product they “would most likely buy” – twice, with 10 and then 20 products, respectively.

### *Materials*

The products were shown on color-printed cards displaying existing product packages. The product packages were manipulated by using PC artworks (see figure 1 for an example).

(insert figure 1 here)

### *Measures*

The healthiness of the product that was chosen by the respondents was measured by the SSAg1-value. The SSAg1-value is a measure that allows combining the various nutrients and calculating a single metric variable (Rayner et al., 2004); a lower SSAg1 indicates a relatively healthier product. Real products and real nutrient characteristics were used in the study. Also, the characteristics and healthiness of the products was matched between the two countries so that the respective choice sets were similar in terms of average SSAg1 level.

## **Results and discussion**

### *Nutrition information impact on healthiness of choice*

In order to identify the effect of the elements of nutrition labels on the healthiness of the choice, a number of MANOVAs were calculated with the SSAg1 values for the respective choice tasks as dependent variables and the presence or absence of additional elements as the explanatory factors (GDA, text (low/medium/high), color coding as either traffic light or a non-traffic light color shading).

The MANOVAs for the two choice decisions (see table 3) show that only the product category and the country contribute to explaining the healthiness of the choice outcome. As the savory snack product category has a lower average SSAg1 value in the choice set, it is not surprising that offering this type of product lowers the SSAg1 value and thus improves healthiness of choice. The country in which the respondents were surveyed also has an influence: Choosing from the larger choice set of 20 products, the choices of the German respondents resulted in relatively higher and thus less healthy SSAg1 values (see table 4). As the choice sets did not differ in their SSAg1 values between the two countries, it is unclear whether this is due to the fact that the attractiveness of the brands differs between the countries, or whether Polish respondents made slightly healthier choices due to other reasons that can be attributed to cultural differences, for example. The variations of the nutrition label format did not have any impact on the healthiness of choice in the stated preference choice task.

(insert table 3 here)

### *Choice set impact on healthiness of choice*

In contrary, adding healthier products to the choice set improves the healthiness of the choices: for both categories and in both countries, choices were on average healthier in the larger as compared to the smaller and less healthy choice set. Thus, it could be shown that the fact alone that the products offered are on average healthier can lead to healthier choices when consumers choose according to their preferences.

One may ask the question whether this improvement of the healthy choice occurred only to the extent that the average healthiness of the choice set was changed, or to a greater extent than that. If healthiness of choice improved only as much as the average of the choice set, it could be argued that a random choice would have the same effect. As can be seen in table 3, the average SSAg1 value in the choice task with 10 products chosen according to preference was close to the average of the choice set, with an exception for savory snacks in Poland, where consumers chose products that were on average 0.6 SSAg1 value points healthier than the average choice set. When respondents were offered 20 product alternatives with products on average healthier by 2.9 to 3.4 SSAg1 value points, it can be observed that the extent of improvement of healthiness of choice, in extent of the improved healthiness of the choice set offered, differs between product categories: In the choice of a savory snacks, both the German and the Polish respondents switched to healthier product choices to a larger extent than the average improvement of the choice set would predict; the improvement of choice being 1.3-1.4 SSAg1 value points greater than in the choice set as such. For the sweet snacks, however, healthiness of choice did not improve more compared with the average healthiness of the choice set in Germany and only slightly more so in Poland (with -0.2 and 0.7 SSAg1 value points difference).

(insert table 4 here)

Thus, it can be shown that enlarging the choice set and improving the healthiness of the choice set can lead to a considerable improvement of the healthiness of choices, over and above average changes of the products' healthiness, but that this might depend on the product category in question. A possible explanation for this might be that the greater variety of products in the larger choice set increases the likelihood that there are preferred products among the healthy products. It might also be that a larger assortment shifts the balances of motives of choice (e.g., larger assortments increasing the use of utilitarian arguments, see Sela et al., 2008), or that adding healthier products primes respondents with health when consumers purchase products (the opposite may occur in restaurant settings, where the food is immediately consumed; Wilcox et al., 2009). Furthermore, the main motives for choice may differ between the two product categories, for example when sweet snacks are chosen for indulgence purposes, and savory snacks as meal replacements.

## **Conclusions**

The study presented here shows that – with respect to designing nutrition labels that seem to be most effective –, none of the specific labeling elements tends to add to facilitating healthy choice. Providing consumers with a healthier assortment to choose from, however, had a much larger effect, even when respondents were not instructed to choose the healthy product, but the product they would most likely buy.

This does not mean that it is not useful to further explore the role of nutrition labels and how a nutrition label can be designed and ‘fine-tuned’ in order to catch attention, inform and motivate consumers to consider health aspects of their food. However, it underlines that nutrition labels as a means to enabling individual consumers to conduct informed choices can only be one measure amongst others. In the overall debate about how to improve consumers’ healthy choices, equal or maybe even more attention should be given to offering healthy food or reformulating products and to shifting the assortment to a healthier set of products. The study findings thus underline that healthy eating promotion needs efforts in a number of aspects and in various ways, such as ‘nudging’ consumers by small changes in the environment that trigger healthier choices. Food marketing and food supply chain actors can play a role in a number of ways, amongst others the product package information as well as the overall product assortment.

### **Limitations and further research**

The study results have to be interpreted on the background of the fact that stated preferences have to be regarded as less realistic and externally valid (Liefeld, 2002; Louviere, 2006), as compared to data gathered at the point of sale. The strength of the study is that it allows a direct comparison of the possible effect of the nutrition label as compared to the choice set effect. To what extent this can be observed in the same way at the point of sale could be a question for further research. The study design furthermore does not allow determining what exactly led consumers to making healthier choices in the larger and healthier choice set, and further exploring this issue would also be an interesting further research topic.

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*response*. Copenhagen: World Health Organization Regional Office for Europe.



**Figure 1. Example of a product stimulus as presented in the choice test**

Source: own

**Table 1. Socioeconomic characterization of the survey participants (N = 1100)**

<b>Variable</b>	<b>Description of respondents</b>	
	Germany (Munich, Hamburg)	Poland (Warsaw, Poznan)
Gender	412 Female / 138 Male	440 Female / 110 Male
Age	Mean 44.35 years of age	Mean 40.88 years of age
Children in household or senior household members	30.0% have children, average 1.63	29.3% have children, average 1.44
Education level	Primary 8.9%	Primary 14.9%
	Vocational 27.8%	Vocational 19.6%
	Secondary school / not finished university 38.7%	Secondary school / not finished university 40.0%
	Higher education (including applied university degree) 24.5%	Higher education (including applied university degree) 25.5%
Occupational status	Working full time 53.6%	Working full time 58.0%
	Working part time 19.3%	Working part time 6.7%
	Not working 27.1%	Not working 35.3%

**Table 2. Overview of the fractional factorial design regarding nutrition labeling**

<b>Card</b>	<b>GDA</b> s	<b>Text “low/medium/high”</b>	<b>Coloring</b>
<b>1</b>	no	no	TL shading
<b>2</b>	no	yes	no
<b>3</b>	Per 100 g	no	no
<b>4</b>	Per 100 g	yes	TL shading
<b>5</b>	Per 100 g	yes	Non-TL shading
<b>6</b>	no	no	Non-TL shading
<b>7</b>	Per 100 g	no	TL shading
<b>8</b>	no	yes	TL shading
<b>9</b>	no	no	no

*Note.* TL = Traffic light

**Table 3. Influence of additional elements added to the ‘basic label’ on healthiness of choice outcome measured by SSAg1 value**

<b>Task</b>	<b>Choice set</b>	<b>Result of MANOVA</b>	<b>Variable found to be significant</b>
Preference (“...would most likely buy”)	10 products	F (6, 993) = 55.75, p < .001 R-square .273 (adjusted .268)	Product category, p < .001 (B = -2.086 for category savory)
	20 products (including the first 10)	F (6, 993) = 51.00, p < .001 R-square .255 (adjusted .250)	Product category, p < .001 (B = -3.651 for category savory) Country, p < .001 (B = 0.845 for Germany)

**Table 4. SSAg1 value of the chosen product per product category and country, as compared to the SSAg1 value in the choice set**

<b>Choice set:</b>		<b>Choice 1:</b>	<b>Choice 2:</b>	<b>Average</b>
<b>Category</b>	<b>Country</b>	<b>10 Products</b>	<b>20 Products</b>	<b>SSAg1-value in:</b>
Savory	DE	10.2	5.6 (4.6)	Choice
Savory	DE	10.4	7.1 (3.3)	Choice Set
Sweet	DE	12.0	9.3 (2.7)	Choice
Sweet	DE	12.1	9.2 (2.9)	Choice Set
Savory	PL	9.8	5.0 (4.8)	Choice
Savory	PL	10.4	7.0 (3.4)	Choice Set
Sweet	PL	12.3	8.6 (3.7)	Choice
Sweet	PL	12.4	9.4 (3.0)	Choice Set

*Note.* In brackets, the average improvement of healthiness of choice / choice set from the choice between 10 to the choice between 20 products is stated.