



Research report

Effects of nutrition label format and product assortment on the healthfulness of food choice [☆]

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ABSTRACT

This study aims to find out whether front-of-pack nutrition label formats influence the healthfulness of consumers' food choices and important predictors of healthful choices, depending on the size of the choice set that is made available to consumers. The predictors explored were health motivation and perceived capability of making healthful choices. One thousand German and Polish consumers participated in the study that manipulated the format of nutrition labels. All labels referred to the content of calories and four negative nutrients and were presented on savoury and sweet snacks. The different formats included the percentage of guideline daily amount, colour coding schemes, and text describing low, medium and high content of each nutrient. Participants first chose from a set of 10 products and then from a set of 20 products, which was, on average, more healthful than the first choice set. The results showed that food choices were more healthful in the extended 20-product (vs. 10-product) choice set and that this effect is stronger than a random choice would produce. The formats colour coding and texts, particularly colour coding in Germany, increased the healthfulness of product choices when consumers were asked to choose a healthful product, but not when they were asked to choose according to their preferences. The formats did not influence consumers' motivation to choose healthful foods. Colour coding, however, increased consumers' perceived capability of making healthful choices. While the results revealed no consistent differences in the effects between the formats, they indicate that manipulating choice sets by including healthier options is an effective strategy to increase the healthfulness of food choices.

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Introduction

The past two decades have witnessed increased attention to nutrition labels in both research and public policy discussions

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(Baltas, 2001; Cowburn & Stockley, 2005; Drichoutis, Lazaridis, & Nayga, 2006; Grunert & Wills, 2007; Seiders & Petty, 2004). In light of rising obesity rates worldwide (World Health Organization, 2007) and the public health costs associated with this and other diet-related chronic conditions, many stakeholders are weighing their options for counteraction. Of the various instruments intended to improve citizens' diets, nutrition labels provide information as a basis for voluntary, informed and conscious consumer decision-making (Capacci et al., 2012).

Nutrition labels are already in use around the world (European Food Information Council, 2011; Storcksdieck genannt Bonsmann et al., 2010). They constitute a popular instrument among policy makers (Van Trijp, 2009), non-governmental organisations and food companies (Golan, Kuchler, Mitchell, Greene, & Amber, 2001). Consumers express their support for nutrition labelling initiatives (EATWELL, 2011) and have positive attitudes towards nutrition labels (Grunert & Wills, 2007; Wills, Schmidt, Pillo-Blocka, & Cairns, 2009), particularly when provided on the front

of the package (e.g., delivering information about the calorie content of a food; Van Kleef, van Trijp, Paeps, & Fernández Celemín, 2008). Front-of-pack (FOP) nutrition labels are valued because many people are exposed to them (Campos, Doxey, & Hammond, 2011) and because they provide information at the point where the majority of food decisions is made (Nordfält, 2009). Nutrition labels might also be appealing because they do not restrict consumers' freedom to choose (Brehm, 1989).

In recent years, various FOP nutrition labelling schemes have been implemented across Europe as a means to inform consumers about the healthfulness of the foods that they can choose from, complementing information on the back of the package. FOP schemes range from the presence of a simple visual symbol (or *health logo*), displayed on the package when a product meets a set of nutrient content criteria for a particular category of foods, to a variety of more detailed FOP schemes. The latter often provide the levels of both energy and key nutrients (usually fat, saturated fat, sugar and salt). Also, for ease of both interpretation and comparison of figures, they often show additional elements, such as *traffic light colours* (TL), *text referring to content levels* (e.g., low, medium, high) and the *percentage of guideline daily amounts* (GDA).

Previous research has identified how consumers assess such FOP labels, showing, for example, that they prefer a simple tool and find the use of TL colours appealing (Hawley et al., 2013), and that they consider more advanced labels difficult to interpret. At the same time, however, consumers appreciate being provided with comprehensive information (Food Standards Agency, 2009; Hodgkins et al., 2012). At present, it remains unclear how much and which information on FOP nutrition labels is just right and which interpretative elements serve best to provide this information.

Furthermore, previous studies focused on the effects of different FOP nutrition labelling elements on consumers' attention, understanding and choice intentions in order to find out whether consumers' decision-making process can be influenced by the labels. As regards consumer attention, the studies do not provide conclusive evidence about attention-drawing properties of different elements, except that attention is higher and processing time shorter for health logos (Feunekes, Gortemaker, Willems, Lion, & van den Kommer, 2008; Van Herpen & van Trijp, 2011) or if the logo appears on a consistent location (Bialkova & van Trijp, 2010). The implementation of TL colour schemes on nutrition labels might be beneficial because the colour coding draws consumers' attention to risk-related nutrients (Jones & Richardson, 2007; for a review see Hawley et al., 2013). As regards consumer understanding, healthfulness comparison tasks of products belonging to one category did not reveal consistent evidence about the differences between various nutrition labelling formats (Grunert, Fernández Celemín, Storcksdieck genannt Bonsmann, & Wills, 2012; Grunert, Wills, & Fernández Celemín, 2010; Malam, Clegg, Kirwan, & McGinial, 2009; Wasowicz-Kirylo & Stysko-Kunkowska, 2011).

Choice behaviour remained largely unconsidered in previous studies that focused on differences in the effects of nutrition labelling formats on the consumer decision-making process. The present study aims to partially fill this research gap. As part of the research project FLABEL (Food Labelling to Advance Better Education for Life), we developed a basic FOP label (see Fig. 1; top row) that was expected to potentially help consumers make healthful choices (Grunert et al., 2012; Hodgkins et al., 2012). It has the following characteristics: First, it is presented consistently in the same position on all food products; second, it provides information on energy expressed per 100 g and key nutrients which are of high

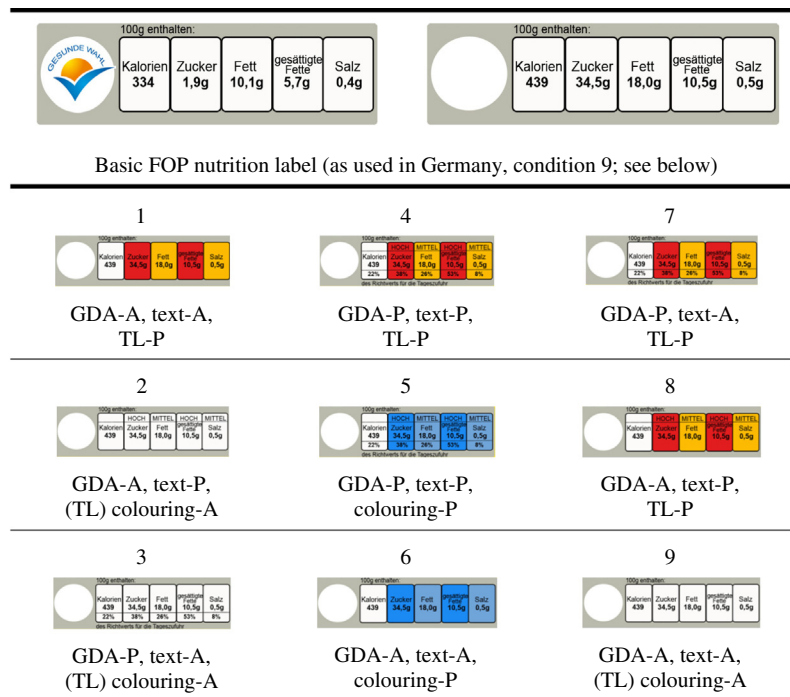


Fig. 1. The basic FOP nutrition label (top row) and the implementation of interpretative elements on the nutrition label (second to bottom row) following a fractional orthogonal design. *Notes.* The basic FOP nutrition label showed a health logo (or not) depending on whether the food products met the criteria to obtain such a logo (see example on the top left and top right). On the bottom rows of the figure, the experimental nutrition label conditions one to nine are shown (in this example all without the health logo), reflecting a fractional orthogonal design. Percentage of GDAs, text descriptors (three levels: low, medium, or high) and colouring was varied (green, amber, or red in the TL condition; light, medium, or dark blue in the blue shading condition). A 10th condition was added where no nutrition labels were shown on the products as a control group. The following abbreviations are used: GDA (guideline daily amount), TL (traffic light colours), and P (present) and A (absent) respectively. The translations are as follows: Gesunde Wahl (Healthy choice), 100 g enthalten: (100 g contain:), Kalorien (calories), Zucker (sugar), Fett (fat), gesättigte Fette (saturated fats), Salz (salt), hoch (high), mittel (medium), gering (low), des Richtwerts für die Tageszufuhr (of your guideline daily amount). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

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