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# The influence of health claims and nutritional composition on consumers' yoghurt preferences

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ABSTRACT

The use of health claims on foods with a poor nutritional composition could pose a risk of misleading some groups of consumers in their food choices. This study aimed to explore the influence of the use of claims on consumers' preferences for yoghurts with a different nutritional composition and the influence of more and less familiar claims on food choices. The study was conducted on 371 consumers using conjoint methodology and further cluster analysis. Fruit yoghurt was used as a base product. We investigated the impact of the following product attributes on consumers' preferences: presence/absence of a probiotic and fat metabolism claim; sugar content; and fat content. The results suggest that, while consumers generally consider the nutritional composition of yoghurt to be more important than the tested claims, some groups of consumers are more sensitive to the use of health-related statements. We observed the consumers' generally positive preference for a familiar probiotic claim, and their negative preference for a non-familiar fat metabolism claim. Overall, these results indicate that some groups of consumers are more sensitive to the use of health-related communications and are therefore more exposed to the risk of being misled if the composition of the yoghurt they buy is in fact less favourable. It would be beneficial if nutrient profiles were introduced to limit the use of claims on foods.



## 1. Introduction

Changes in dietary and health patterns and physical activity are increasing the risk of non-communicable diseases, which are the leading cause of global mortality (Diepeveen, Ling, Suhrcke, Roland, & Marteau, 2013; WHO, 2010). While some consumers are more keen on the promotion of a healthy lifestyle and healthy food choices (Lalor, Madden, McKenzie, & Wall, 2011), changing the eating patterns of the general population is a very complex problem. One tool used in efforts to improve eating patterns involves informing consumers with detailed nutrition information and some countries have introduced this as part of their mandatory food labelling (Grunert & Wills, 2007). The mandatory labelling of a nutrition declaration was introduced in the European Union (EU) in 2007 for foods labelled with nutrition or health claims, while other prepacked foods will be affected at the end of 2016 (EC, 2011; Pravst, 2012).

Food labelling is regulated to both help consumers make informed choices regarding the food they consume and prevent any practices that may mislead them. In recent years, food labels have commonly included statements claiming beneficial nutritional or health effects – nutrition and health claims. While the occurrence of such claims is both category- and country-specific (Bonsmann et al., 2010), yoghurts and breakfast cereals are recognised as categories where the use of health claims is most frequent (Lalor, Kennedy, Flynn, & Wall, 2010; Pravst, Kušar, Pohar, & Klopčič, 2013).

It is well established that consumers' ability to understand food labelling information entails many different factors, such as sociodemographic characteristics, nutrition knowledge, familiarity with the food along with label format and articulation (Cowburn & Stockley, 2005; Grunert, Wills, & Fernandez-Celemin, 2010; Nocella & Kennedy, 2012). Poor understanding of such information can have a negative impact on healthy food choices and market efficiency (Nocella & Kennedy, 2012). It has been shown that consumers accept food labelling as beneficial (Zezelj, Milosevic, Stojanovic, & Ognjanov, 2012) and that they have a stronger preference for simple health statements (Bitzios, Fraser, & Haddock-Fraser, 2011), which are easier to understand, even though more familiarity with health claims may lead to a preference for more complete and informative – and hence longer – claims (Grunert

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et al., 2009). A lack of understanding of health claims can limit perceptions of the intended meaning and may cause suspicions regarding the product. Further, consumers have expressed doubts over the claimed effects of foods (Niva & Mäkelä, 2007; Svederberg & Wendin, 2011). In some cases, consumers do not read the claims carefully or transfer the meaning from a familiar food label to an unfamiliar one, potentially leading to overgeneralisation and inaccurate conclusions (Draper et al., 2011; Fullmer, Geiger, & Parent, 1991). Some consumers search for additional information on a food package to help them relate the claim to their earlier knowledge and experiences (Svederberg & Wendin, 2011), while others find reading food labels time-consuming and strenuous (Signal et al., 2008; Zezelj et al., 2012). The response to food labels is also influenced by the way in which information is presented. Health claims are usually written in a technical language that consumers are unfamiliar with, limiting their ability to understand a claim's meaning; this can lead to: (a) a positivity bias, whereby a consumer gives better ratings for a product only because a claim is present; (b) a halo effect, which occurs when a consumer rates a product higher on attributes unrelated to the claim; and (c) a magic-bullet effect, when a consumer applies inappropriate health benefits to a product (Roe, Levy, & Derby, 1999).

Further, consumers' acceptance of foods labelled with claims depends on their familiarity and perceptions related to the perceived fit of the ingredients and carrier or base products (Krutulyte et al., 2011; Verbeke, 2010). It has been shown that consumers perceive some nutrients as either qualifying (i.e. vitamins) or disqualifying (i.e. fat, sugars) and that they consider the nutritional value of foods as important when selecting foods, particularly when it comes to qualifying nutrients (Hoefkens, Verbeke, & Van Camp, 2011). On the other hand, it is poorly understood how different health claims influence consumers' food preferences when disqualifying nutrients are involved. Studies investigating this area are also very important for informing policy-makers about the need to regulate the use of health claims on foods. Consumers can perceive products labelled with nutrition or health claims as healthier, which can influence their purchasing decisions (Verbeke, Scholderer, & Lähteenmäki, 2009). To avoid misleading consumers with the use of health claims on foods that are high in disqualifying nutrients, European regulation introduced the setting of nutrient profiles (EC, 2006), but this part of the legislation has not yet been implemented (Cappuccio & Pravst, 2011; Pravst, 2011). To enable efficient science-based decisions in this process, it is also vital to define different consumer segments and identify those most vulnerable to the nature of nutrition and health claims (Van Trijp & Van der Lans, 2007).

As consumers differ in terms of health consciousness, nutritional knowledge, familiarity with nutrients and functional ingredients, and previous experience with foods with health claims, we expect that consumers also differ in their reaction to health claims in the context of different levels of disqualifying nutrients. Previous studies have taken such differences into account by distinguishing different consumer segments, but have either analysed only one type of claim (Cox, Evans, & Lease, 2008) or have not placed the claims in the context of disqualifying nutrients (Annunziata & Vecchio, 2013; Hailu, Boecker, Henson, & Cranfield, 2009; Sorenson & Bogue, 2005; Sparke & Menrad, 2009).

Therefore, the objectives of our study were: (a) to study consumers' preferences for fruit yoghurt when different claims are present in combination with different levels of disqualifying nutrients; and (b) to determine different segments of consumers based on their preferences. In addition, we explored how familiarity with a claim influences consumers' food choices. The importance of various product attributes (presence or absence of a claim, different sugar and fat content) on consumers' yoghurt preference was measured using conjoint analysis. A base product (fruit yoghurt) was carefully selected to enable wide and realistic variations in the nutritional parameters and the use of different claims.

## 2. Material and methods

### 2.1. Data collection

The data were collected via a questionnaire administered to 390 consumers. The survey was carried out by six researchers in different regions of Slovenia to assure that both central and non-central parts of the country were covered. Researchers received instructions to select respondents on the basis of sex and age so as to ensure a suitable composition of the final sample. A filter question about the frequency of eating yoghurt was used to screen participants at the beginning of the interview. Participants who answered that they never consume yoghurt ($N = 18$) were excluded from the study. The remaining participants were asked to complete a card-sorting task; 371 participants finished this task and represent the final sample. The study was performed in line with the Code of Ethics of the University of Ljubljana. Participants were interviewed in their homes.

The study had two parts. After the screening question, we performed a conjoint study and participants were asked to sort nine product cards according to their preferences. Second, they completed a questionnaire measuring their knowledge of the active ingredients, self-reported choice criteria, and demographics.

### 2.2. Conjoint analysis design

Conjoint analysis is a method used to evaluate the importance individuals assign to various attributes of a product (Green & Srinivasan, 1978). Several studies have employed conjoint analysis to show the effect the trade-offs between health or nutrition claims and sensory or non-sensory factors have on consumers' preferences for choosing a product or determining its healthfulness (Annunziata & Vecchio, 2013; Ares, Gimenez, & Deliza, 2010; Ares, Gimenez, & Gambaro, 2009; Bech-Larsen & Grunert, 2003; Dean et al., 2012; Drewnowski, Moskowitz, Reisner, & Krieger, 2010; Johansen, Naes, Oyaas, & Hersleth, 2010).

The conjoint analysis design entailed four product attributes – two different claims (*probiotic* and *fat metabolism* claims), content of sugars and fat, as shown in Table 1. The full factorial design produced 36 ($2 \times 2 \times 3 \times 3$) profiles. By using an orthogonal fractional factorial design allowing the estimation of main effects only, the number of product cards was reduced to nine. An example of such a product card with both claims is shown in Fig. 1. The participants had to rank the cards according to their preferences from 1 (most favourable) to 9 (least favourable).

The base product of this study was fruit yoghurt given that it is widely consumed around the world. As a good source of nutrients,

**Table 1**
Attributes of yoghurts and their levels used in the conjoint analysis.

| Attribute | Attribute levels |
|---|---|
| Claim "*support in metabolism of fats*" (hereinafter the *fat metabolism claim*) | Yes<br>No |
| Claim "*probiotics*" (hereinafter the *probiotic claim*) | Yes<br>No |
| Sugar content per 100 g of product | 4 g<br>10 g<br>16 g |
| Fat content per 100 g of product | 0.1 g<br>1.5 g<br>3.5 g |