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The role of health-related claims and health-related symbols in consumer behaviour: Design and conceptual framework of the CLYMBOL project and initial results

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Abstract

Health claims and symbols are potential aids to help consumers identify foods that are healthier options. However, little is known as to how health claims and symbols are used by consumers in real-world shopping situations, thus making the science-based formulation of new labelling policies and the evaluation of existing ones difficult. The objective of the European Union-funded project *Role of health-related CLaims and sYMBOLs in consumer behaviour* (CLYMBOL) is to determine how health-related information provided through claims and symbols, in their context, can affect consumer understanding, purchase and consumption. To do this, a wide range of qualitative and quantitative consumer research methods are being used, including product sampling, sorting studies (*i.e.* how consumers categorise claims and symbols according to concepts such as familiarity and relevance), cross-country surveys, eye-tracking (*i.e.* what consumers look at and for how long), laboratory and in-store experiments, structured interviews, as well as analysis of population panel data. EU Member States differ with regard to their history of use and regulation of health claims and symbols prior to the harmonisation of 2006. Findings to date indicate the need for more structured and harmonised research on the effects of health claims and symbols on consumer behaviour, particularly taking into account country-wide differences and individual characteristics such as motivation and ability to process health-related information. Based on the studies within CLYMBOL, implications and recommendations for stakeholders such as policymakers will be provided.

Keywords: consumer behaviour, food choice, food labelling, health claim, health symbols

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Introduction

In 2006, the European Commission (EC) introduced a new regulation (EC 1924/2006) on nutrition and health claims made on foods (EC 2006) to harmonise the rules governing the use of nutrition and health claims on foods and drinks throughout the European Union (EU) and to ensure a high level of consumer protection. The use of such information may be further underpinned by nutrient profiles, setting out more detailed criteria for the provision of nutrition and health claims on different food and drink products. The importance of this regulation is threefold. Firstly, bearing in mind the public health implications of inadequate diets and unhealthy lifestyles, this approach has significant potential to help guide consumers towards healthier food choices. Secondly, it ensures a higher level of consumer protection by enabling consumers to make informed food choices. Lastly, it is intended to stimulate innovation and competitiveness among European food producers.

Although the process of approval [including the scientific substantiation evaluated by the European Food Safety Authority (EFSA)] for the use of health claims is highly regulated, consumer understanding, acceptance and use of such claims and symbols is less clear (Verhagen *et al*. 2010). Nonetheless, select aspects of the role of health claims and symbols in consumer behaviour have received considerable attention in research, including understanding of different types of claims, perception of products carrying such claims and effects on purchase and consumption behaviour (Verbeke *et al*. 2009; Harris *et al*. 2011; Lynam *et al*. 2011; Bilman *et al*. 2012; Dean *et al*. 2012; Gallicano *et al*. 2012; Roberto *et al*. 2012; Hoefkens & Verbeke 2013). For recent reviews on health claims research, we refer to Lähteenmäki (2013) as well as Wills *et al*. (2012). However, given the complexity of the topic, diversity of the research designs, methodologies and stimuli employed, the findings are difficult to compare across populations and limited conclusions can be made about the actual impact the provision of such information has on consumer understanding, purchasing and consumption. Point of departure for the analysis of these claims and symbols and their effects on consumer behaviour will be the EU-funded project FLABEL (2008–2011) (Storcksdieck genannt Bonsmann *et al*. 2010a). Among other things, findings will be compared with the EU-wide audit of food labels in 5 product categories that was carried out in 2008–2009 where researchers found on average 2–4% of products to contain health claims and 1–2% of products to carry health logos (Storcksdieck genannt Bonsmann *et al*. 2010b).

The EU-funded project CLYMBOL (*Role of health-related CLaims and sYMBOLs in consumer behaviour*) aims to provide a comprehensive assessment of the role of health-related information on food and drink products in consumers' food choices and to derive implications for the provision and communication of such information. This is to be achieved by a set of five research work packages (WPs 1–5), supported by dissemination activities (WP6) and project management (WP7) (see Fig. 1). To the authors' knowledge, this is the most comprehensive study in this field to date, both in terms of the number of countries covered and the scope of research. This contribution describes the overall design and conceptual framework of the project. In addition, first results and insights are provided where available.

Methods/design

Work Package 1 – Current status of health claims and symbols: Product supply

At the start of the project, the consortium created a benchmark by identifying differences in the history of use of health claims and symbols across Europe. In 26 EU Member States, 53 key informants from up to three different stakeholder groups were interviewed: national food authorities, representatives of the food industry and consumer organisations. Although 14 Member States reported (at least partial) regulation of the use of health claims and/or symbols before the introduction of the regulation on nutrition and health claims made on foods (EC 1924/2006; EC 2006), mandatory reporting of use had only been in place in three EU Member States. A number of voluntary codes of practice for health claims and/or symbols (*i.e.* pre-approval or justification when challenged) was said to be in use in 15 Member States. There are only a few national databases on health claims and symbols available, the data for which is often incomplete. Only seven Member States reported having some form of database from which information about health claims and symbols could be extracted. The stakeholders interviewed expressed a strong interest in evaluating the impact of health claims and symbols. The main areas that were considered to need monitoring were (1) the role of health claims and symbols in consumer behaviour; (2) their impact on public health; and (3) economic effects. Reasons for not measuring such impacts included scepticism concerning the general effectiveness of claims and symbols but also a lack of knowledge as to how this could be done.

Based upon already existing classification schemes (Rayner *et al*. 2013), a taxonomy of food labelling

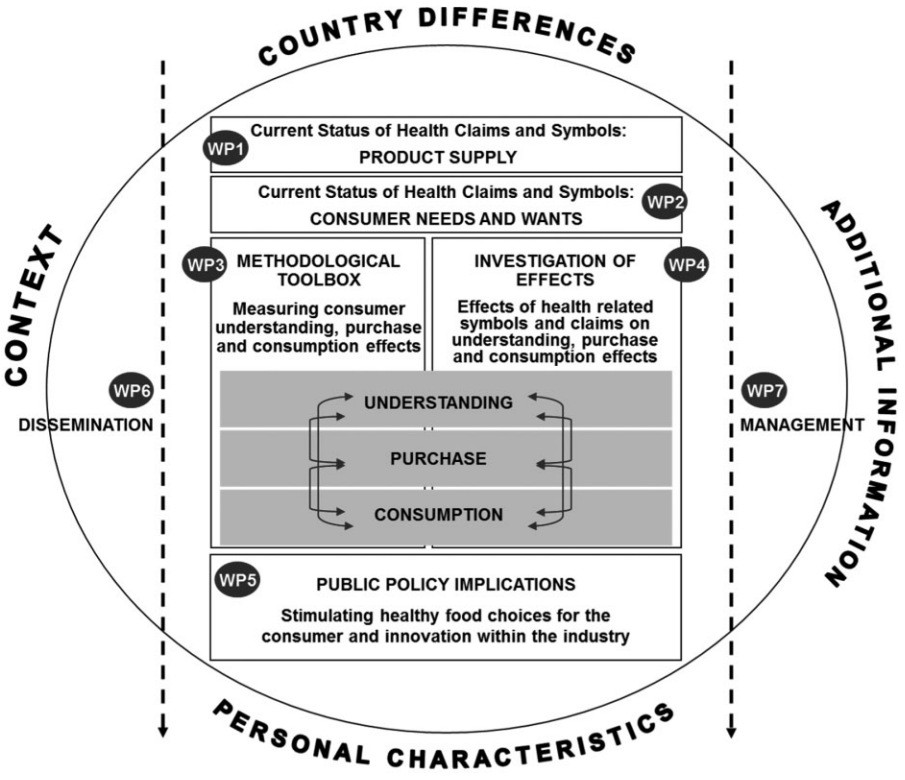

Figure 1 Structure of the CLYMBOL project. WP, Work Package.

components was developed, including product information and (expressed) claims as the main components available at the point of purchase. Product information comprised mandatory food information (*i.e.* the information required according to Regulation EC 1169/2011; EC 2011) and other information (*i.e.* value chain information, marketing-related information, package design and other). Claims on-pack were either worded (*i.e.* nutrition and health claims) or symbolic (*i.e.* nutrition and health symbols). Possible claim types included nutrition, health or health-related ingredient claims. All other claims were categorised as miscellaneous claims. For each category, detailed categorisation schemes were developed. Health claims, as well as health and nutrition symbols, form the core of analysis in the CLYMBOL project, while all other information available at the point of purchase is being considered as context factors.

To map current consumer exposure to claims and symbols across Europe, a five-country prevalence study was undertaken. On the basis of a randomised sampling protocol, a total of 2034 products were sampled in The Netherlands, Germany, Slovenia, Spain and the United Kingdom, in three different store types each, and all available product packaging information was extracted and reported according to the classification scheme developed for the preliminary taxonomy. The number and types of claims were recorded into a database, including information on the nutrients and other substances mentioned, whether claims were worded and/or symbolic, and whether the health claims were specific or non-specific, *i.e.* whether they specified which compound was responsible for the health effect claimed or not. Using the product categorisation scheme according to Dunford *et al.* (2012), the claims were further classified by product category in order to analyse the prevalence of claims by food type. In addition to this, the context in which claims and symbols appeared was analysed. All available information on-pack was extracted and classified according to the types of images appearing on the packaging, as well as the position and the size of the claims. Detailed results will be published in a separate paper.

In the next step, the nutritional composition of the foods sampled that carried health claims and symbols were analysed and compared against the Food Standards Agency Australia and New Zealand's (FSANZ) nutrient profile model used for regulating health claims. Analysis of the nutritional composition of those foods bearing health claims and health symbols showed that foods that carry a health-related claim are slightly healthier than foods that do not carry a claim. On average, when carrying a health claim, foods had lower

The Nordic Keyhole

Finnish Heart

Choices International

Figure 2 Examples of health-related symbols studied in the CLYMBOL project.

saturated fatty acid levels, energy and sodium than those without a health claim. Using the FSANZ nutrient profile model's nutrient profile scoring criteria (NPSC), the scores of foods with and without claims were calculated. It was found that the majority of foods with a health claim pass the NPSC. Detailed results will be published in a separate paper.

Furthermore, three health symbols (the Nordic Keyhole, the Finnish Heart Symbol and the Choices International logo) (Fig. 2) were selected based on their prevalence in the European market and the fact that their 'criteria for use' were available publicly. The food products contained in the database were assessed against the criteria for these symbols in order to determine which foods would be allowed to carry one or more of the three symbols. This was amended by a comparison against the aforementioned NPSC and the most recent version of a model developed by the EC for the regulation of health claims across the EU. First results show that there is only slight or fair agreement between the nutritional criteria supporting the health-related symbols while there is substantial agreement between the EU model and the NPSC. Both the EU model and the NPSC would allow approximately half of the foods to carry health and nutrition claims, whereas the health-related symbols are much more restrictive. Detailed results will be published in a separate paper.

Work Package 2 – Current status of health claims and symbols: Consumer needs and wants

Having set the scope in WP1, WP2 will examine differences in consumer motivation and ability to process health-related claims and symbols (*i.e.* consumer wants), as well as differences in consumers' nutritional and health status that may have an impact on whether food products with specific health effects will indeed be beneficial to consumers (*i.e.* consumer needs).

A series of semi-structured interviews, sorting exercises and recall and recognition tasks have been conducted in order to provide insight into how consumers categorise various health claims and symbols within a specific context (images and other information), how they use their subjective causal models of health to interpret them and the extent to which the presence of health-related images on packaging can affect the inferences consumers derive about the health properties of products. Detailed results will be published in a separate paper.

Additionally, a ten-country online survey (United Kingdom, Germany, The Netherlands, Spain, Slovenia, Czech Republic, France, Denmark, Greece and Lithuania) has been carried out to assess how motivated and able European food shoppers are to process health claims and symbols on food products, and whether there are country-specific or segment-specific differences. More than 5000 participants were surveyed on familiarity with and attitudes towards selected health claims and health symbols. Motivation and ability to process these claims and symbols differed across countries with the highest scores seen among Spanish consumers and the lowest among Dutch. Results were similar for all claims tested (heart, brain, digestion, immunity, bone and dental health-related claims) with a slightly higher motivation to process bone-related claims and a slightly lower motivation towards digestion-related claims. In general, European consumers' motivation and ability to process health claims differs little between claims and symbols. Consumers' perceived need for information emerges as the main factor correlated with their motivation to process health-related claims, whereas subjective knowledge about the healthiness of food emerges as the main correlate of consumers' ability to process such claims. Cross-country differences in consumers' reactions towards, and their motivation and ability to process health claims and symbols, will be discussed against the prevalence of claims and symbols in the corresponding countries as assessed in WP1. Detailed results will be published in a separate paper.

Building on these insights, differences in nutritional needs will be analysed by means of routinely collected

health statistics, notably indicators of consumers' nutritional and health status. These will be compared with the health claims and symbols identified in the data sample in WP1, studying (in)consistencies between consumer needs and what is currently on the market. Data analysis and reporting will be finalised by mid-2015.

Combined results of WPs 1 and 2 will serve as a basis for revising the preliminary taxonomy of food labelling components with a special focus on health claims, symbols and their context, taking into account both the expert and the consumer point of view. This final classification scheme will be the point of departure for all further empirical research in this project.

Work Package 3 – Methodological toolbox: Measuring the effect of health claims and symbols on understanding, purchasing and consumption

The CLYMBOL consortium has developed a set of criteria against which 40 methods have been evaluated regarding their suitability for assessing consumer understanding, purchase and consumption. The criteria were developed based on theories of consumer behaviour, literature on validity and reliability, existing quality assessment tools, seven key informant interviews (with public policy and industry representatives), input from consumer researchers and prior tasks in CLYMBOL (WP1 and WP2). The criteria pertain to three main groups:

(**1**) Theory-driven criteria ensuring that potential methods are in accordance with theoretical insights relevant for the study of impacts of health claims and symbols on consumer understanding, purchase and consumption;
(**2**) General methodological criteria ensuring validity and reliability of methods; and
(**3**) Feasibility-related criteria ensuring usability of methods.

Reviews of methods to measure understanding of health claims and symbols and their impact on purchase and consumption have been carried out and inventories of the methods have been developed. All methods were compared and tested individually, as well as in combination, in order to assess applicability and internal and external validity. Outcomes of this analysis will serve as a basis for formulating recommendations on the use of methodologies in measuring understanding of health claims and symbols in their context, and the effects on purchase and consumption behaviour. Detailed results will be published in a separate paper.

Work Package 4 – Investigation of effects: The effect of health claims and symbols on understanding, purchasing and consumption

A combination of quantitative and qualitative research methodologies will be applied within different studies to determine and quantify the effects of health claims and symbols on consumer understanding, purchase and consumption. Four experimental studies measuring the effect on purchase will employ systematically varied assortments of products on computer screens and/or in a virtual supermarket. Four additional studies will explore the effects of claims and symbols, in their context (*e.g.* packaging design) and on actual intake during consumption situations (*e.g.* buffet context). Both of these types of studies will consider consumer understanding of claims as a mediator of any effects on purchasing and consumption. Several of these studies will be replicated in different countries to explore differences and similarities across Europe. Furthermore, the effects of claim-symbol-context combinations on food choice will be validated in experimental in-store scenarios in Germany and Slovenia, enabling the collection of additional information for a deeper understanding of the effects on purchase. Econometric modelling of household purchase data from both Denmark and The Netherlands will be applied to analyse changes in household purchases following the market introduction of a health symbol (*i.e.* the Nordic Keyhole and the Choices International logo, respectively). Based on the detailed information of the nutritional composition of the food products purchased by the Danish household panel, the effects on individual food and nutrient intake will be assessed. This research will be completed by early 2016.

Work Package 5 – Public policy implications: Stimulating healthy food choices for the consumer and innovation within the industry

Part of the CLYMBOL project is to turn methodological and empirical findings into actionable implications and recommendations for different stakeholders [consumers, industry, retailers, non-governmental organisations (NGOs), policy makers and others]. Analyses will explore the role of social media in communicating with the public and assisting consumers in making informed and healthy food choices. By means of evaluating the 'Choices' logo campaign in The Netherlands (which ran from July to December 2014), the effectiveness of a real-life campaign using social media will be studied. Data analysis is currently ongoing. Together with input obtained via industry consultations on social innovation strategies and the use of social media in the communi-

cation of health-related information, these outcomes will lead to the identification of new communication tools for information provision on health claims and symbols. Based on a series of workshops with diverse stakeholder groups, guidelines will be developed for public and private policy makers, identifying best practices for the provision of health claims and symbols that will result in desirable effects on consumer food choice. Recommendations will be provided for implementing and assessing the impact of future food labelling schemes on consumer understanding, purchase and consumption. This work is still in its early phase, relying heavily on the results that will become available towards the end of the project.

Work Package 6 – Communication, stakeholder engagement and public dissemination

An initial communication and dissemination plan has been developed to underpin all of the project's research activities. Stakeholder engagement has been successful with the creation of a balanced stakeholder advisory board comprised of regulators and national authorities, representatives of consumer and patient organisations, and industry and retail associations. Dissemination tasks completed so far include the creation of a project logo (Fig. 3) and graphical identity as well as a web presence (www.clymbol.eu). Various dissemination materials have been created, including a leaflet and an article in the magazine *Food Today* (EUFIC 2013). Dissemination via websites and web technology is ongoing, with broad outreach through media relations, traditional newsletters and new technologies (*i.e.* CLYMBOL Facebook and Twitter accounts, and podcasts). In addition to these activities, by the end of 2014, more than 225 presentations were given at various scientific and stakeholder conferences. First abstracts have been presented at the World Congress on Public Health (Brown *et al.* 2014) and the European Childhood Obesity Group conference (Hieke *et al.* 2014). Further abstracts have been submitted to international public health, nutrition, consumer behaviour and food marketing and policy conferences, while a range of manuscripts will be submitted to peer-reviewed journals in the future.

Figure 3 Project logo.

Expected final results

Upon project completion, the CLYMBOL consortium will have achieved the following:

- Creation of the first EU-wide benchmark study on consumer exposure to health claims and symbols on foods, leading to insights into the extent to which health claims and symbols are prevalent in Europe;
- Provision of evidence on how consumers form opinions about the healthfulness of products, and how they interpret health claims and symbols in this regard;
- Mapping of differences in consumer motivation and ability to process health-related claims and symbols (consumer wants), as well as differences in consumers' nutritional and health status that may have an impact on whether food products with specific health effects will indeed be beneficial to consumers (consumer needs);
- Provision of a taxonomy of health-related claims, symbols and their context, taking into account both expert and consumer perspectives;
- Development of best practice methods for measuring how health claims and symbols, in their context, are understood by consumers and how they affect consumer food choice;
- Provision of the scientific evidence on how health claims and symbols, in their context, are understood by consumers, contribute to healthier food choices at the point of purchase and their potential to induce healthier consumption patterns;
- Conversion of the methodological and empirical findings gathered in CLYMBOL into actionable implications, recommendations and communication guidelines for the different stakeholders identified (consumers, industry, retailers, NGOs, policy makers).

Discussion

There is widespread interest among stakeholders in Europe to measure the effect of health claims and symbols, particularly with regards to consumer understanding, purchasing and consumption behaviour, public health outcomes and economic impact. As part of the labelling information that is available for food and drink products, claims can be divided into worded and symbolic, with health claims, nutrition and health symbols forming the focus of analysis in the CLYMBOL project. Taking the insights obtained from the EU-funded project FLABEL as a point of departure and once the data from WPs 1 to 5 become available, a

holistic analysis of the role of health claims and symbols in consumer behaviour will be possible, ultimately providing a solid information basis for future research and public policy.

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Conflict of interest

The authors have no conflict of interest to disclose.

CLYMBOL project partners

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- Ghent University (Belgium)
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