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The role of health-related claims and symbols in consumer behaviour: the CLYMBOL project

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Abstract Health claims and symbols are a convenient tool when it comes to the marketing of foods and they should, in theory, support consumers in making informed food choices, ideally in choosing healthier food products. However, not much is known about their actual impact on consumer behaviour. CLYMBOL ("The Role of health-related CLaims and sYMBOLs in consumer behaviour") is an EU-funded project aiming to study how health claims and symbols influence consumer understanding, purchase and consumption behaviour. During a 4-year period, a wide range of research studies have been conducted across Europe, in order to analyse European consumer behaviour in the context of health claims and symbols. Results of the studies will provide a basis for recommendations for stakeholders such as policy makers, the food industry and consumer and patient organisations.

INTRODUCTION

The Regulation (EC) 1924/2006 on nutrition and health claims went into effect in 2006. It was designed to offer industry a guideline on how to use claims on food products, ensuring the effective functioning of the internal EU market, whilst protecting consumers and their right to non-misleading food information (1). However, the actual effect of health claims and symbols on European consumers' understanding, purchase and consumption behaviour was largely unknown at that time. The European Commission decided to issue a call under the 7th Framework Programme for Research and Technological Development, asking researchers to contribute to a better understanding of consumer behaviour in relation to claims and symbols on food products.

CLYMBOL ("The Role of health-related CLaims and sYMBOLs in consumer behaviour") was awarded the grant (Grant Agreement No 311963). The project began in 2012 and ends in August 2016. It consists of five research work areas that are using a wide range of empirical methods to study the effects of health claims and symbols on consumer behaviour. Among them are cross-sectional online surveys, qualitative studies, lab experiments (e.g. eye-tracking) and real-life in-store studies. An overview of the project structure and research plans can be found in Hieke et al. (2).

The aim of the project is to study health claims and symbols in their context, e.g. as they appear on a food package, together or without additional (visual) information, and how they interplay with national (cultural) differences as well as personal factors such as motivation and/or ability to process this health-related information.

As a starting point, differences in the history of use of claims and symbols across EU Member States have been investigated, followed by a prevalence study of claims and symbols that can currently be found on food products in the EU. CLYMBOL researchers looked at how consumers use their own subjective models of health to classify and interpret claims. This qualitative research was amended by a quantitative 10-country study on European consumer attitudes as well as motivation and ability to process health claims and symbols. In a third step, a methodological toolkit was developed and tested, to provide stakeholders with a set of methods best suited to help them answer their research questions. A range of empirical studies, from online surveys, laboratory experiments, and in-store tests to econometric modelling of household panel data was employed to investigate current effects of health claims and symbols on consumer behaviour: understanding, purchase and consumption. Discussing and weighing all of these

results, a set of implications, policy recommendations and communication guidelines for different stakeholder groups have been formulated and will be tested for their validity, usefulness and effectiveness at CLYMBOL's stakeholder conference June 15, 2016, in Brussels.

PRIMARY RESULTS

Work area 1: Current status of health claims and symbols

In order to measure the prevalence of health related claims, a multinational survey (Germany, Spain, the Netherlands, Slovenia and the UK) involving more than 2,000 food products was conducted. The food products were collected following a randomised sampling protocol (3). Researchers found that, between countries, 20 to 35% of food products carry a claim. The UK had the highest prevalence of nutrition claims, whereas the Netherlands had the most health claims. Nutrition claims were the most frequently used claims, followed by health claims and health-related ingredient claims (non-nutrient substances which may have a nutritional or physiological effect). Nutrition and other function claims made up 47% of all health claims while only 5% were disease risk reduction claims. Regarding food categories, 78% of baby foods carried a nutrition claim and 71% carried a health claim. Regarding convenience foods, 9% carried a nutrition claim, whereas egg products didn't carry any claim, making them the categories with the lowest prevalence. Using data extracted from nutrient declarations on food labels and from a food composition database, CLYMBOL researchers further compared the nutritional quality of food products with health claims versus products without claims. Analyses are currently underway to determine if foods carrying health-related claims have a 'healthier' nutritional profile than foods that do not carry such claims. The current Regulation states that a nutrient profile model should be used to regulate health claims so that only foods with the best nutritional composition may carry health related claims. Analyses are being conducted to assess whether different nutrient profile models 'agree' on which foods may carry health-related claims.

Work area 2: Consumer needs and wants

The focus in this work area lies on evaluating consumers' motivation and their ability to process health claims and symbols. CLYMBOL researchers designed a set of qualitative studies to improve our understanding of how consumers process claims and symbols. Analysing subjective causal models across 25 different nutrition and health claims showed that familiarity with the nutrient/substance and the personal relevance are the primary influence factors of consumers' acceptance of nutrition and health claims. These factors vary strongly, depending on the individual, making it very likely that consumers perceive the same claims differently (4).

Another study with over 500 consumers from five EU countries (Germany, Spain, the Netherlands, Slovenia and the UK) analysed if consumers draw on their personal background knowledge to interpret health claims. It could be shown that participants indeed use personal beliefs and additional causal knowledge. Study participants for example said that saturated fat had an influence on heart health, a statement not mentioned in the examined claim. Therefore, familiar or personally relevant substances could result in an "upgrade" of a statement, showing that consumers' assessments of the healthiness of claims does not only rely on what is actually stated in the claim.

An online survey in ten countries (Czech Republic, Germany, Denmark, Spain, France, Greece, Lithuania, the Netherlands, Slovenia and the UK) questioned over 5,000 participants about their motivation and ability to process health claims and symbols. Spanish consumers showed the highest scores regarding their motivation and ability to process health claims and symbols, while consumers in the Netherlands ranked lowest. The need for information was found to be the main driver for consumers' motivation and it was also increased in individuals with a stronger health motivation. Subjective knowledge regarding the healthiness of food was observed as the main factor driving consumers' self-reported ability to process health claims and symbols. Additionally, a stronger familiarity with health claims led to a higher ability to process health claims. Consumers' motivation and ability were also shown to be clearly linked.

Further analyses were conducted to assess the public health relevance of health claims. A review of national health statistics from a variety of sources was used to identify the most prominent health needs in each country. This was then compared to the prevalence of health and nutrition claims for each country. Details of this work can be found in a separate article in this issue ("Do health and nutrition claims meet consumers' health needs?"). Further work is underway to model the effects of health and nutrition claims on health outcomes to assess whether differences in nutritional quality between labelled and unlabelled foods translates into differences in health outcomes.

Work area 3: Methodological toolbox

In order to accurately measure the effects of claims and symbols on consumer understanding, purchase and consumption behaviour, this work area developed an empirical toolkit. In each of the three main areas of focus in CLYMBOL – understanding, purchase and consumption – detailed literature reviews were carried out to gather and collect available methods. These were then evaluated against a set of criteria revolving around validity, reliability and feasibility. A list of final methods was selected to test within CLYMBOL, for the specific purposes of consumer research on health claims and symbols. The aim of this work area is to describe these methods, discuss their pros and cons and recommend specific approaches for select research questions.

To measure consumer understanding, CLYMBOL researchers tested CUT ("Consumer Understanding Test") as well as the soft and the hard laddering method. Sales/scanner data, choice experiments (in-store as well as virtual supermarkets/shelves), electro-dermal measures and eye-tracking were tested for their suitability to study purchase behaviour. Lastly, methods to study consumption behaviour included observation (covert weighting of consumed products), dietary records, anthropometry, and biochemical markers. The results of this work area form the basis to deriving recommendations on the usage of methodologies in three categories: routine use by policy and industry, in-depth policy-related studies and theory-driven consumer science studies. For example, when wanting to test consumer understanding of a new claim or a new wording of an approved claim, the CUT method is a good method for the industry to document that a claim is understood as it can be used on a large sample size and allows to classify consumers depending on their reaction to a claim (5).

Work area 4: Investigating the effects

This work area aims at investigating current empirical effects of health claims and symbols on consumer understanding, purchase and consumption behaviour, using a mix of quantitative and qualitative studies across Europe. A series of on- and offline studies looked into consumer attitudes towards products with and without claims, with and without visual imagery and combinations of products and claim types. For example, one study in the Netherlands evaluated the influence of package design such as the use of images and colours on the healthiness perception of claims and symbols. It was shown that implicit cues like imagery have the same importance as explicit cues, e.g. a stated claim. Several of these studies have been repeated in or extended to other European countries. For example, online buffet studies in the Netherlands could not show the so-called licensing effect, an effect that postulates that consumers overeat as soon as some of the foods they consume carry a health logo and as such mark a healthy choice. This result could be replicated in a real-life buffet study in Spain.

Furthermore, the effects of claim-symbol-context combinations on food choice were tested in an experimental supermarket in Germany, using point-of-sales studies and eye-tracking. The main question was whether the familiarity of a health claim plays a role in gaze behaviour (measured via eye-tracking) which in turn may influence product choice. It has also been investigated whether additional pictorial information (placed near the health claim, front-of-pack) could increase consumers' attention towards health claims at the point-of-sales. These studies were then replicated and extended in a real-life supermarket in Slovenia, using eye-tracking devices and manipulated food labels of existing food products (fruit juices and breakfast cereals).

Lastly, in order to study the effects of introducing a new health symbol onto the market, an econometric modelling of household purchase data before and after the introduction of the Nordic Keyhole symbol in Denmark and the Choices International symbol in the Netherlands, respectively, has been undertaken. CLYMBOL researchers analysed households that buy products with and without health symbols and investigated whether food purchases have changed after the introduction of the two health symbols. Hedonic price models were estimated to determine if consumers value the information provided by the health symbols and what their willingness-to-pay is, across different segments. First results suggest that consumers value healthy foods (i.e. products carrying health symbols) more than their counterparts, and that the provision of health symbols can constitute an added value to them.

Work area 5: Public policy implications
This work area develops recommendations for public stakeholders such as policy makers on European and national level, the food industry, and consumer and patient organisations. The complete list of stakeholders identified as relevant for CLYMBOL includes producers/ manufacturers/suppliers, retail/catering, consumers, regulators, scientists, health and medical professionals, public health authorities, journalists, media in general and educators. Based on the results of the studies in the different work areas, implications from research are collected and recommendations as well communication guidelines are being developed. Implications and recommendations will be presented for feedback at the CLYMBOL stakeholder conference June 15, 2016 in Brussels.

DISCUSSION

Under patronage of CLYMBOL, the first benchmark study analysing the prevalence of health claims and symbols in Europe was employed. Many studies are still being finalised, therefore not all results are published yet. However, all studies will be published in scientific journals and promoted via the project website www.clymbol.eu, the CLYMBOL newsletter and its social media channels.

CONCLUSION

A better understanding of how consumers perceive health claims, their exposure to them and how they influence consumer behaviour is beneficial for many stakeholders. Policy makers need to know how effective the current legislation is in informing consumers about health claims. Especially with a revision of the current regulation on the horizon, it is important to know whether health claims actually fulfil their purpose: directing the average consumer to a healthier food choice and, ultimately, improving public health. It is the aim of the CLYMBOL project to provide policy makers with science-based guidelines to support pan-European regulation as well as foster innovation and competitiveness among the European food industry. The methodological toolbox further offers a set of tools and criteria to measure and monitor the impact of claims and symbols on consumer understanding, purchase and consumption behaviour. CLYMBOL's holistic, interdisciplinary and international approach will provide a sound scientific basis for current debate and future research.

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CONFLICT OF INTEREST

The authors have no conflict of interest to disclose.

CLYMBOL project partners

- Aarhus University (Denmark) – *Scientific Advisor*
- Agrifood Research and Technology Centre of Aragon, CITA (Spain)
- Corvinus University Budapest (Hungary)
- European Food Information Council (Belgium) – *Coordinator*
- Ghent University (Belgium)
- Globus SB-Warenhaus Holding GmbH &Co. KG (Germany)
- Saarland University (Germany)
- Schuttelaar & Partners NV (The Netherlands)
- Swedish National Food Agency (Sweden) – *from September 2012 to February 2014*
- University of Copenhagen (Denmark)
- University of Oxford (United Kingdom)
- University of Surrey (United Kingdom)
- University of Ljubljana (Slovenia)
- Wageningen University (The Netherlands)

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