RESEARCH OVERVIEW

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Overview of results: Choices Programme scientific research

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1 Introduction

In 2004, the World Health Organization (WHO) called on the food industry to help make healthy choices more available and easier for consumers to select. As a result, the Choices Programme was launched in 2006 with a front-of-pack logo backed by independent scientific product criteria: the Choices-logo (Dötsch-Klerk et al, 2008). In 2011, the methodology behind the product criteria was published in the European Journal of Clinical Nutrition (Roodenburg et al., 2011).

The programme relies on a set of product-group specific criteria that use international dietary guidelines as their basis. These criteria are periodically reviewed by members of an independent International Scientific Committee, with backgrounds in nutrition, food technology and consumer science. The criteria can be used as benchmarks for product reformulation, healthy product offerings and the use of front-of-pack labelling. Products that fit the Choices criteria are eligible to carry the Choices logo.

To develop nutrient criteria as well as to calculate the potential impact of the Choices Programme, food composition data are used. Jansen & Roodenburg (2015) describe in more detail the role, the needed characteristics and availability of databases for the substantiation of the Choices Programme.

The Choices Programme has three fundamental objectives: 1) to encourage food companies to improve the composition of their products, thereby increasing the availability of healthier food and beverages, 2) to help consumers to quickly identify healthier options when making food purchases and 3) to encourage healthy product promotion.

In parallel to the programme’s development, independent scientific research into the effects of the Choices logo is being carried out. In The Netherlands, the first country to introduce the Choices logo, the VU University Amsterdam - under the guidance of Professor Jaap Seidell - has studied the effects relating to the introduction of the “Ik Kies Bewust-logo” (i.e. the Dutch version of the Choices-logo, currently called ‘het Vinkje’).

In recent years, this research - in conjunction with other studies - has yielded important information about the Choices logo and its effects on consumers, producers and possible dietary intake. These studies are outlined in this document, and a summary of relevant studies on front-of-pack (FOP) labelling systems is provided in chapter 8.

References


2 Impact of the Dutch Choices logo on product development and innovation

2.1 Impact on product composition

One of the aims of the Choices Foundation is the stimulation of product innovation towards healthier products. Vyth et. al. (2010) studied whether the Choices logo encourages the development of healthier products. Dutch Choices Programme participants were asked to provide data on the composition of old and new products, which was assessed to determine the extent to which new or improved products have an improved composition in comparison to similar products or replacement products. For reformulated products, the results indicate a significant reduction in sodium. In reformulated soups this was 14%, in processed meats 18%. Also, saturated fat was reduced in different product groups, for example in processed meats with 43%. Added sugar in dairy was reduced with 75%. In newly developed products, sodium, saturated fat and added sugar are often reduced (e.g. 25% sodium reduction in soups, 88% saturated fat reduction in dairy), while the fibre content is increased (e.g. 33% in sandwiches).

Reference

2.2 Impact on expected and actual taste perception

Liem et al. studied the expected and perceived saltiness and liking of soups with different expressions on the label. Next to a control label, the following three conditions were compared to each other: 1) with the Dutch Choices logo; 2) with a reduced salt claim; and 3) with a Choices logo and a reduced salt claim together. The results suggest that consumers expected the salt taste intensity (P < 0.001) to be lower when the label stated “now reduced in salt”, compared to the soup without such label. Furthermore, consumers expected to like the soup with the Choices logo more liked than the same soup with the logo and the “now reduced salt” label (P = 0.1). After consumers tasted the soups, no differences in liking or desire were found between the soups with the different labels.

Reference

3 Impact of the Choices logo on consumer behaviour

3.1 Impact of the Choices logo on purchasing behaviour in the supermarket

Two studies specifically address the effect of the Choices logo on consumer behaviour in the supermarket.

The first study, Vyth et. al. looked at the actual use of the Choices logo by supermarket shoppers. Approximately 400 supermarket shoppers were interviewed on their attitudes towards healthy eating, following the purchase of their groceries. The number of products they had purchased which bore the Dutch Choice-logo was also recorded. Results showed that respondents who reported consciously buying products bearing the logo bought more
products carrying the logo than those who indicated not consciously buying products with the logo. Respondents with an awareness of health, weight and nutritional information actively bought more products carrying the logo, while respondents who considered food enjoyment as important bought fewer items bearing the logo.

The second study, by the Dutch Agri-economic Institute (LEI), evaluated the extent to which the introduction of the Dutch Choices logo on existing products, as well as the introduction of new products carrying the logo in specific product groups, had an effect on the purchase of these products. An impact was perceived, but it is unclear to which extent it can be attributed solely to the use of the logo on these products. Furthermore, it was observed that within some product groups, the market share of products bearing the logo increased.

References

3.2 Impact of the Choices logo in out-of-home settings

Research conducted in 25 workplaces within The Netherlands concludes that the Dutch Choices logo does not have a notable effect on the sale of healthier lunch foods, but may help employees to opt for a healthier selection. Over a nine week period, sales data from thirteen cafeterias using the Choices logo were compared daily with twelve control cafeterias offering the same non-logo menu. In addition, 368 employees completed an online questionnaire, both at the beginning of research and following the period during which the logo was used. The results did not demonstrate a nutritionally meaningful effect on the sale of sandwiches, soups, snacks, fruit and salads. Nevertheless, the questionnaire data showed that health conscious employees might find the healthy choice labelling useful.

In a full-service restaurant setting, the purpose of an experiment by Gallicano et. al. was to measure consumer response to nutrition information on menu items, and to subsequently determine if consumers use this information to select their menu items. The experiment was conducted with 264 restaurant customers at a full-service, a-la-carte restaurant. In the Menu, the Dutch choices logo was explained to the clients. Customers could choose from menu items carrying the Dutch Choices logo, and comparable ones not carrying the logo. Fifty-four percent of restaurant customers opted for the Choices menu item. Logistic regression confirms that people who desire nutritional information also use this information in their choice of menu. The study concludes with recommendations for the industry on directing consumer menu choice towards healthier items.

References

3.3 Impact of the Choices logo on consumption and product appreciation

Steenhuis et al evaluated whether the “Ik Kies Bewust” logo had an effect on the amount of cake consumed, as well as on its taste appreciation among young women. The results indicate that a cake bearing the logo was not perceived as healthy, but rather as less unhealthy than a cake which didn’t carry the logo. Furthermore, the presentation of the cake with the Choices logo did not produce an increased consumption of cake, or a different appreciation of the taste.

Reference


3.4 Consumer surveys on the Choices logo

Before the launch of the “Ik Kies Bewust” logo, a baseline measurement was taken. Annual surveys were then conducted by GfK on behalf of the Foundation in the form of an internet survey among a representative sample (n>1000) of the Dutch population. The most recent consumer survey took place in September 2013 and is reported here. To interpret the results, it is important to note that the logo in its current dual appearance (with a green or blue circle around) and with the new name “Vinkje”, has not been on the market very long yet. The new logo gradually replaced the old one between 2011 and 2013. The survey reported below took place after the first phase of a communication campaign to introduce the new logo to the public. The next survey will take place after the second phase of the campaign.

Results show that:
- Over 90% recognises the logo (aided recognition)
- Over 50% finds the logo (very) credible, 11% (very) incredible
- In the Netherlands, the logo exists in two colors: green for basic products (products that appear in the Dutch food based recommendation model) and blue for extra’s like snacks, soups and sugary drinks. One third says to know the difference between the logos, but when asked for an explanation, only one third of them explains it correctly. Many others do link the logo with health or a healthier variant within a product group.
- Around half of the interviewees claims to pay attention to the logo when shopping, and buys sometimes or often a product because it has the logo on it.
- Over 50% of the interviewees is willing to pay somewhat more for a product with the logo

The article by Vyth et. al. (2009) is based on the earlier Dutch GfK\(^1\) survey and on focus group interviews (performed by employees of the VU University Amsterdam), with the intent of providing a qualitative and quantitative process evaluation of the introduction of the Choices logo.

References


\(^1\) GfK is one of the largest market research companies worldwide. More information can be found [here](#).
4 Potential impact of the Choices logo on diet, nutrient status and biomarkers: modelling studies

4.1 Potential impact of the Choices logo on nutrient intakes

Currently, five different studies have addressed the potential impact of Choices on nutrient intakes. Three of these studies relied on data from The Netherlands, one included data from seven different countries worldwide and one studied the impact of a Choices-compliant diet in Brazil.

The first study, by Roodenburg et. al. (2009) calculated the expected effect on the daily diet of the Dutch population if regularly consumed, non-compliant products were to be replaced with products bearing the “Ik Kies Bewust” logo. The replacement of regular products with products bearing the Dutch Choices logo resulted in a 15% decrease in energy intake, a 63% decrease in trans fatty acids, a 40% decrease in saturated fatty acids, a 36% decrease in sugar and a 23% decrease in sodium. Furthermore, increases in the intake of fibre (28%), calcium (17%), iron (13%) and folic acid (5%) were predicted. The authors therefore concluded that the Choices Programme has the potential to have a substantially positive impact on the diet of the Dutch population.

The study by Temme et. Al. was based on the Dutch food consumption survey of 2003, and calculated the impact of substituting regular products with those bearing the Dutch Choices logo. According to the market share of Choices products in 2007, a small reduction in saturated fatty acids and sugar intake can be achieved, while a maximal 100% substitution produces a greater reduction (23% - 40%) of saturated fatty acids, sodium or sugar intakes.

The second study by Roodenburg et. al. (2011) derived the average intakes of energy, trans fatty acids, saturated fatty acids, sodium, added sugar and fibre from dietary intake studies and food consumption surveys in seven countries: The Netherlands, Greece, Spain, the USA, Israel, China and South Africa. For each of these key nutrients, the average intakes were translated into three Typical Daily Menus per country. Average intakes based on these three menus were compared with average intakes from three Daily Choices Menus. To compose the Choices Menus, foods from the Typical Menus that did not comply with the Choices criteria were replaced with compliant foods available on the market. Comparison of intakes from the Choices Menus with the survey data demonstrated that calculated intakes of each of the key nutrients decreased, except for fibre intake, which increased. This shows that Daily Menu Method allows a quantitative look into the calculated changes that sets of nutrient criteria - such as those of the Choices Programme - can have on a countries’ nutrient intake. Furthermore, it confirms that the criteria that have been set for Choices are strict enough to potentially move intakes into a direction that is more favourable for health.

A Brazilian study showed that replacing typical Brazilian foods by Choices criteria compliant products may improve Brazilian diets by substantially decreasing unfavourable nutrients while increasing dietary fibre. This appeared from a modelling study by the Brazilian scientists Wenzel de Menezes et. al. Replacing typical products from the Brazilian menu by products complying to the Choices criteria, resulted in a decrease of 52% in saturated fatty acids, 92% of trans fatty acids, 14% of energy and 47% of sodium. Dietary fibre increased by 87%. As data on key nutrients were incomplete in the Brazilian food composition database, the scientists created a new database by
collecting information from food labels, resulting in a database of 1720 industrialized products. Data on sugar or added sugar were not sufficiently available to evaluate.

Data from the fourth modelling study by Roodenburg et. al., in a Dutch young adult population, also show potential beneficial effects of Choices on energy and nutrient intakes, but also unintended effects on fat soluble vitamins. Calculated intake distributions showed that median energy intake was reduced by 16% by replacing normally consumed foods with Choices compliant foods. Intakes of nutrients with a maximal intake limit were also reduced (ranging from -23% for sodium and -62% for TFA). Effects on intakes of beneficial nutrients varied from an increase of 28% for fibre and 17% calcium to an unintentional reduction in fat soluble vitamin intakes (-15 to -28%). The estimated reduction of fat-based beneficial nutrient intakes can be attributed to replacement of high-fat foods by alternatives with a better fat quality or lower energy content. The authors recommend to study this effect in more detail. Nonetheless, it is concluded that for the nutrients used in the Choices benchmarks, intakes shift substantially in a beneficial direction when people consume Choices compliant foods. By choosing healthier options in each product category, consumers could have substantially healthier diets that are more in line with the WHO recommendations. The effect on fat soluble vitamins should be taken into account when this kind of criteria are considered to implement mandatory.

These 5 studies show that nutrient intakes would move substantially into a favourable direction when typical menus are replaced by Choices compliant menus, although the size of the effect depends on the local situation. Also, they show that the Choices criteria are equally applicable in non-European countries like Brazil, even without the adaptations that are allowed to adjust for local food patterns. The recently shown unintended effect on fat soluble vitamins deserve attention, but mainly when all products would be Choices compliant, for example when the Choices programme would be implemented obligatory.

References


4.2 Potential impact of the Choices logo on cholesterol

Vyth et al. (2011) used a modelling study to predict the potential impact of a diet consisting of Choices-compliant products on cholesterol levels. After replacing all non-compliant products with compliant products (maximum scenario), the saturated fatty acids median intake reduced from 14.5 to 9.8%. Trans-fatty acids reduced from 0.95 to 0.57%. The average predicted changes in low-density lipoprotein (LDL) and total cholesterol levels were -0.25 and -0.31 mmol/l, respectively. As high-density lipoprotein (HDL) cholesterol levels decreased as well (-0.05 mmol/l), overall, the result was a slightly favourable change in the total cholesterol/HDL ratio (-0.03).

Reference

5 Implementation evaluations of the Choices-logo

A nutrition label in worksite cafeterias in the Netherlands: an implementation evaluation

The purpose of a study by Vyth et al. (2011) was to investigate which factors influence the implementation of the Dutch Choices logo in company canteens in The Netherlands. Surveys were sent to 634 managers of Dutch company canteens that are members of Sodexo or Albron, with a total of 316 completed replies. To encourage the implementation of the logo, it is important for catering managers to consistently strive for healthy eating. The time it takes to produce freshly prepared products complying with the Choices criteria should also be limited. Finally, it could be recommended to include the Dutch Choices logo in the (health) policy of caterers, so as to further encourage the implementation of the logo in company canteens within The Netherlands.

Reference

6 Stakeholder perceptions on the Choices-logo

Nutrition labelling and the choices logo in Israel: positions and perceptions of leading health policy makers

This study aimed to examine positions and perceptions of 15 Israeli leading dieticians and health officials regarding nutrition labelling and the Choices logo, before the planned launch in Israel in February 2011, as well as how they would communicate it to the public as agents of influence. The study involved in-depth face-to-face and telephone interviews using semi-structured protocols. The respondents considered that the nutrition facts panels usually found on the backs of packages are too complicated for the average consumer. Similarly, fronts of packages are cluttered with advertisements and health claims, causing confusion. The study participants would like to see an integrative label on the front of the package to facilitate consumers’ decisions.
The results of the present study highlight the importance of a need for an integrated programme of nutrition promotion, including the use of social marketing based on a cooperative effort between the food industry, regulators and professionals, to recommend changes and adjustments in nutritional front of package labelling with the aim of promoting healthier nutrition consumption.

Reference

7 Comparison of different sets of nutrient criteria

Fine bakery wares with label claims in Europe and their categorisation by nutrient profiling models
Sets of nutrient criteria can be applied to identify fine bakery wares with a significantly better nutritional composition than the average range of products. Trichterborn et. al. identified more than 200 commercially available fine bakery wares carrying claims in Germany, France, Spain, Sweden and United Kingdom. These were evaluated against five sets of nutrient criteria. Total energy, saturated fatty acids, sugars, sodium and fibre were critical parameters for the categorisation of products, with the Choices criteria being the most restrictive model in this category. Different sets of criteria for subcategories of fine bakery wares did not seem necessary.

Reference

A web-based study tested consumer understanding of different FOP labeling systems. Adult participants (N = 480) were randomized to 1 of 5 groups to evaluate FOP labels: 1) no label; 2) multiple traffic light (MTL); 3) MTL plus daily calorific requirement icon (MTL+caloric intake); 4) traffic light with specific nutrients to limit based on food category (TL+SNL); or 5) the Choices logo. Total percentage correct quiz scores were created reflecting participants’ ability to select the healthier of 2 foods and estimate amounts of saturated fat, sugar, and sodium in foods. Participants also rated products on taste, healthfulness, and how likely they were to purchase the product. The findings suggest that both the Choices and MTL+caloric intake labels have limitations but that overall they perform similarly in educating the consumer.

Reference

8 Other applications of the Choices criteria

Waterlander et. al. (2012) performed a study aimed at examining the effectiveness of varying taxing and subsidising schemes to stimulate healthier food purchases. In this study, the Choices criteria were used to select the healthier foods. The authors concluded that price decreases are effective in stimulating healthy food purchases, but the
The proportion of healthy foods remains unaffected. Price increases up to 25% on unhealthier products did not significantly affect food purchases.

Reference

9 Research on FOP-labelling

Since the introduction of nutrition labelling models, numerous studies have focused on consumer understanding and effectiveness of different labelling schemes relying on logos, and traffic lights or GDA-like labelling systems. This chapter highlights some relevant studies. A comprehensive overview and evaluation of the quality of the methodology is presented in a review by Vyth et al. (Nutrition reviews, 2012). As Vyth et al. conclude from this review, few methodologically sound studies are presently available and there is a need to measure the health effects of FOP-labels in a real-life setting, using biomarkers in a longitudinal, randomized controlled design.

Feunekes et al. (2008) compared simple logos such as the Choices logo with more complex labelling systems such as traffic lights and GDA. Simple logos (including the Choices logo) were found to require less time to interpret, making them more suitable for use in supermarkets, where people must make rapid decisions about which products to purchase.

Van der Bend et al. (2014) developed a new model to compare and visualise existing front-of-pack nutrient profiling schemes. They identified 40 of these front-of-pack systems currently in use. The various systems are found on all continents, most of them initiated in North America. 90% of the systems have criteria based on thresholds, only a few use a scoring approach. More disqualifying than qualifying criteria are used. The disqualifying ingredients most often used are saturated fatty acids (SFA), total fat, trans fatty acids (TFA), sugar, sodium, energy and cholesterol. Dietary fibre is the most frequently used qualifying ingredient in the FOP-systems. The funnel model provides an easy-to-use overview of the differences and similarities between systems like Choices, Keyhole, Heart logos, single colour or colour coded GDA and many more, based on eight different characteristics.

Bialkova et al. (2014) use eye-tracking studies to measure whether and how attention to nutrition information mediates consumers’ choice. The study demonstrates that colour-coded and monochrome GDA’s result in more attention and more product selection compared to the Choices logo. This effect can be explained by the time it takes the consumer to process the labelling information. The authors therefore propose to distinguish between attention-getting and attention-holding properties of the nutrition label format. As the Choices logo has a simple format, the attention-holding time might be lower compared to GDAs. However, authors did not state how many of the studied persons did know the meaning of the Choices logo or if the logo was explained. The study concludes that studies in real shopping environments are needed. The authors suggest that it is not unlikely that these studies might demonstrate that a simple logo such as Choices could have more influence on consumer choice.

References


10  Summary of research findings

Innovation and reformulation
In relation to product innovation and reformulation, research suggests a strong sodium and sugar reduction of Choices-compliant products over time, while the fibre content has increased.

Consumer research
During the first years after the introduction of the Dutch Choices logo, Dutch consumers gave a high degree of recognition and credibility to the Choices logo, which they say is easy to interpret and therefore suitable for people who need to shop quickly. These consumer survey data will be updated regularly. Scientific research points out that people who pay attention to healthier diets buy more products with the Choices logo, but it is unclear whether this is solely due to the logo, or whether other factors are more important (such as increased publicity). Most consumers indicate that they do not consume more of a certain product when it bears a Choices logo, and this is confirmed by the results of a practical study.

In terms of catering, the Choices logo has only had a marginal influence on point-of-sale purchases, with only those respondents motivated by health indicating that they make use of it. This demonstrates however, that individual motivation to eat more healthily is a major incentive for using the logo. An experiment in a full-service restaurant indicated that a small majority (54%) opted for Choices-labelled menus.

Potential impact on diet and nutrient intake
To help evaluate the criteria of the Choices Programme, the Daily Menu Method was developed. It looks at the potential impact of sets of nutrient criteria - such as those of the Choices Programme – on a population’s nutrient intakes. The method can be applied internationally, demonstrating that the objectives and criteria of the Choices Programme improve nutrient intakes in line with international dietary recommendations. Research also shows that if consumers were to consistently select products that comply with the Choices criteria, their daily diet would be more in line with international dietary guidelines. Indeed, their intake of nutrients which negatively impact health would be noticeably reduced, while their intake of most beneficial nutrients would increase. It was also shown that a small beneficial effect on cholesterol can be expected. A calculated reduction of fat soluble vitamins due to a shift towards lower fat products has been found in the latest model study. This would be of concern when all products consumed are in compliance with the criteria.

FOP-labelling research
As Vyth et. al. conclude from their review on the quality of FOP- labelling studies, few methodologically sound studies are currently available. Recommendations for future research include the need for measuring the health impact of FOP-labels in a real life setting by using biomarkers in a longitudinal, randomized controlled design.

Consumer understanding of symbols and claims as well as how they affect purchasing behaviour will be topic of research of the EU funded CLYMBOL project that will run from 2012 until 2016, and in which products carrying the Dutch Choices logo are part of the study.
Appendix: Ongoing research

CLYMBOL
The objectives of the EU funded CLYMBOL project are to determine how health-related symbols and claims, in their context, are understood by consumers, and how they affect purchasing and consumption. The project will begin in September 2012 and run until 2016.

VU post doc programme
Research on the feasibility of using Choices in school cafeteria.