

# Understanding consumers' underlying motives for purchasing cheese with health benefits

## Respuesta de los consumidores uruguayos a quesos con beneficios nutricionales

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### Abstract

In Uruguay, dairy is the sector that has expanded most with the introduction of functional products. Cheese is a widely consumed dairy product and it is also an interesting alternative to develop healthy products. For this it is important to identify which health benefits of cheese interest consumers most. This work aimed to study and explain the response of Uruguayan consumers to cheeses with different nutritional characteristics. Laddering technique was applied to understand consumers' underlying motives for purchasing, or not purchasing, cheese with different health claims. According to results, consumers expected that by the consumption of specific functional cheeses they will look more attractive and achieve a better quality of life. The main reasons given by the other consumers for not buying cheese with health benefits were expected lack of pleasure and distrust in the claimed health benefit.

**Keywords:** cheese, health benefits, laddering, motives to purchase.

### Resumen

En Uruguay, el sector lácteo es el que más se ha expandido con la introducción de productos funcionales. El queso es un producto lácteo ampliamente consumido y también es una alternativa interesante para desarrollar productos saludables. Para esto, es importante identificar qué beneficios para la salud son los que más le interesan a los consumidores. Este trabajo tuvo como objetivo estudiar y explicar la respuesta de los consumidores uruguayos a quesos con diferentes características nutricionales. Se aplicó la técnica de escalamiento ("laddering") para comprender los motivos subyacentes de los consumidores para comprar o no comprar queso con diferentes declaraciones de propiedades saludables. De acuerdo a los resultados, los consumidores esperan mediante el consumo de quesos con determinada funcionalidad verse más atractivos y alcanzar una mejor calidad de vida. Las principales razones dadas por los consumidores para no comprar queso con beneficios para la salud son la falta de placer al consumirlos y la desconfianza en el supuesto beneficio para la salud.

**Palabras clave:** quesos, beneficios para la salud, escalamiento, motivos para comprar.

## Introduction

Recent years have witnessed an increase in the number of products incorporating new ingredients such as fiber, prebiotics, probiotics, vitamins, minerals and antioxidants, or those with reduced content of certain components like fat, sodium or sugar (Ye, et al., 2018). However, not all consumers consider the possible health benefit of a food to be an added value, thus it is not always a guarantee of a product's market success. The acceptance of a food depends on the interaction between the food and the consumer (Shepherd, 1989). Therefore, the combination of sensory and non-sensory factors may generate more complete and realistic information about consumer behavior in purchasing situations (Asioli, et al., 2017). On one hand, consumer response to a product can vary greatly

depending on consumer characteristics (Bruhn, et al., 1992; Wilcock, et al., 2004; Guerrero, et al., 2000; Caporale y Monteleone, 2001; van Kleef, et al., 2002; Sijtsema, et al., 2004) and their motivations due to particular interest in health, weight concerns, sensory pleasure, ideological reasons, convenience, price or familiarity (Crossley and Khan, 2001; Lindeman and Stark, 1999). On the other hand, consumers' reaction to health benefits can also differ depending on the type of food. Functional foods are not perceived by consumers as a homogenous category and the reasons for choosing a functional product differ within different food categories (Urala and Lähteenmäki, 2004, 2007; Ares and Gámbaro, 2007). Consumers perceive products that are intrinsically healthy such as yogurt, cereals and juice, as preferable and credible carriers for functional ingredients (Annunziata and Vecchio, 2011).

Ares et al. (2008) showed that Uruguayan consumers were in general willing to consume food products with a positive impact on their health, particularly those that could reduce the risk of cardiovascular diseases or cancer, or boost their immune system. In Uruguay, as in the rest of the world, dairy is the sector that has expanded most with the introduction of functional products (Bimbo, et al., 2017; Siró, et al., 2008; Menrad, 2003). Among them, yogurt-like products (enriched with fiber, vitamins or omega-3, prebiotics or probiotic) are the most popular.

Cheese is a widely consumed dairy product and it is also an interesting alternative to develop healthy products (Awaishah, 2011; Rodrigues, et al. 2011; Guttierrez and Barreto, 2010; Fritzen-Freire, et al., 2010; Noronha, et al., 2007). According to OECD/FAO (2015), the global production of dairy products is constantly growing over time. In particular, within the group of processed dairy products, cheese consumption is expected to continue to account for the greatest share at an annual average rate of 1,6%.

For the above-mentioned reasons, it is important to identify which health benefits of cheese interest consumers most. To date there is no information about Uruguayan consumers' opinion on cheeses with specific nutritional characteristics.

Laddering technique can be used to understand how product information is processed by consumers. Laddering is based on an in-depth one-to-one interviewing technique, following Means-End Theory (Gutman, 1982). Laddering seeks to determine sets of links between the key perceptual elements across the range of attributes, consequences and values. Its main objective is to go from the lowest (surface/concrete) to the highest level of consumer values (deep/abstract) (Gandia, et al., 2017). These association networks, or ladders, represent combinations of elements that serve as the basis for distinguishing between and among products in a given product class (Sørensen and Askegaard, 2007).

Gandia et al. (2017) used laddering technique to analyze consumer behavior of beverages obtained from capsules, allowing differentiating the attributes of each brand, as well as defining common/cumulative elements. On the other hand, Arsil et al. (2018) used data from laddering technique to segment the market based on consumers' motivation. They investigate the motives of urban consumers when purchasing local food products using means-end chain (MEC) analysis.

The aim of this work was to understand the differences in opinion towards the health benefits that Uruguayan consumers give to different health benefits on semi-soft cheese.

## Materials and Methods

The study was carried out for a well known type of cheese in Uruguay, a semi-soft cheese: Dambo cheese. The health benefits considered were: low-fat, salt-reduced, fiber-enriched and probiotic. These benefits were considered as relevant according the results obtained in a conjoint study carried out before (data not shown). A regular product was considered as reference.

### Soft laddering

In order to elicit the A-C-V sequential links (Phillips and Reynolds, 2009; Reynolds and Gutman, 1988), one-on-one and in-depth interviewing technique was chosen. This type of laddering technique is called "soft laddering".

Five different versions of Dambo cheese labels were created varying the health benefit indicated on it: low-fat, salt-reduced, fiber-enriched, probiotic and a regular one. Figure 1 shows as example one of the five labels created. A group of 41 consumers (68% were women and 32% were men; 54% from 18 to 40 years old and 46% from 40 to 66 years old), workers of LATU, and frequently consumers of cheeses participated in this evaluation. Each consumer was interviewed by an interviewer who was previously familiarized with the methodology in an individual session of 30-45 minutes. First, the five labels were simultaneously presented in random order and the interviewer asked the participant: "If you were at the supermarket buying cheese, which of these cheeses would you choose according to their label? And from the remaining samples, which one would you choose? And then?" Thus the interviewer continued asking until the rank order of choice was completed for all five labels. After that, and in accordance with the rank order chosen, each label was presented individually to the consumer, who was asked if he/she would buy, or not, the corresponding cheese and the reasons for buying or for not buying the product established using a series of "why" questions (Sørensen and Askegaard, 2007).

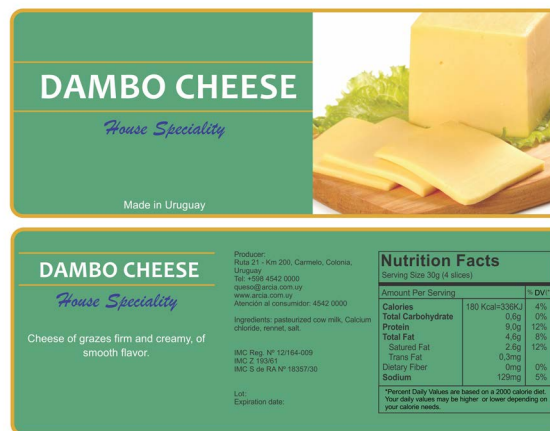


Figure 1. Example of labels created for this study: a salt-reduced cheese.

## Data analysis

To analyze the order of choice of the Dambo cheese labels, the Friedman Analysis of Variance was applied and significance of differences between samples determined by the Fisher test ( $\alpha=0,05$ ), as modified for non-parametric data (Meilgaard, et al., 1999). Data from the laddering task were analyzed as proposed by Reynolds and Gutman (1988). Attributes, consequences and values having the same meaning were grouped together and coded. The grouping processes were performed by three researchers, who defined by consensus between them the codes and dimensions and the name or label assigned to each of them. The researchers involved in this task had previous experience in semantic analyses applied to different qualitative techniques.

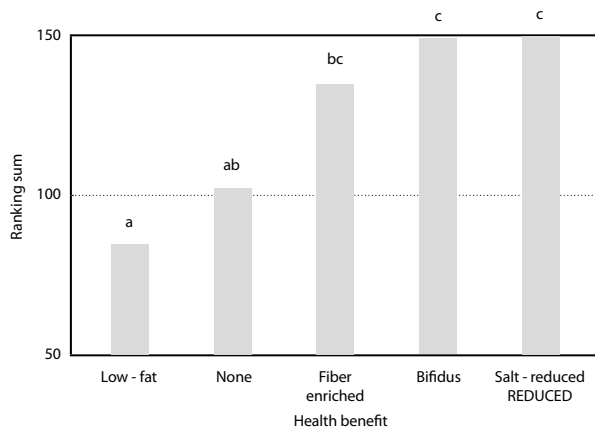
With this information, diagrams showing relationships among attributes, consequences and values (Hierarchical value maps: HVM) were constructed.

Data analyses were performed using the software XLSTAT 2011.1.02 Version (Addinsoft, France).

## Results and Discussion

### Understanding how health benefits affect willingness to purchase cheese

Laddering technique was used to provide information about consumers' motivations for purchasing or rejecting cheeses with different health benefits. According to the ranking results, the order of choice of labels significantly varied among cheeses with different health benefits ( $p < 0,0001$ ). The first position of choice was taken by the label indicating low-fat, followed by the regular cheese, and the fiber-enriched label, and in the last position were the labels of bifidus-containing and salt-reduced cheeses (Figure 2).



**Figure 2.** Order of consumers choice (from first to last) of cheese labels with different health benefits (rank sum values).

In the case of the low-fat cheese, its preference instead of the regular one is in accordance with Bimbo et al. (2017), who suggest that individuals prefer dairy food products with health and nutrition claims rather than identical ones without a claim, suggesting that the presence of a claim increases the healthiness perception of products and therefore their acceptance (Ares, et al., 2009; Bech-Larsen y Grunert, 2003).

Participants' responses indicating the reasons for buying, or not buying, each type of cheese were analyzed and summarized, keeping the MEC theory abstraction levels (Reynolds

and Gutman, 1988). Overall, four attributes (corresponding to the four health benefits), 14 consequence codes and five value codes were elicited from all the responses, considering both the reason for buying and for not buying the samples. A total of 20 ladders were obtained. Then dominant connections were graphically represented in a tree diagram, termed a Hierarchical Value Map (HVM). So, HVM with the reasons for buying cheeses is shown in Figure 3. In general, behind the choice of cheeses with a health benefit consumers wanted to look more attractive and achieve a better quality of life.

Many participants would purchase low-fat cheeses but gave different reasons. Most of them did not want to gain weight. For these people it was important to look attractive, and they associated this condition with weight control. There were also people that would buy low-fat cheese looking for a better quality of life, either because they had high levels of cholesterol and they wanted to control the fat intake, or just because they wanted to prevent certain diseases.

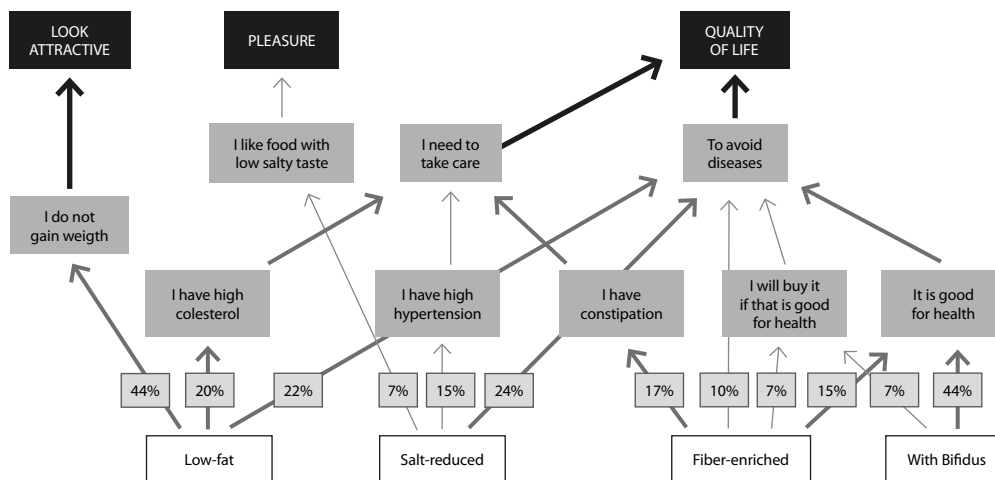
Similarly, some participants indicated that they would buy the salt-reduced cheese to reduce salt intake, either because they had hypertension or just because they considered that was good to prevent diseases.

The reasons indicated by participants interested in fiber-enriched cheese were the prevention of diseases or to improve constipation. Participants interested in bifidus and some people interested in fiber indicated that they would buy these cheeses because they were good for health, even if they did not really know their mechanisms of action.

According to these results, consumers would buy and consume a specific product because they believe that they can achieve a desired value through the attributes of the product and their consequences.

On the other hand, the final reason participants gave for not buying cheeses with health benefits were the expected lack of pleasure and distrust of the claimed health benefit (Figure 4). Pleasure was the basic value that people look for through consumption of regular cheese and it was also the most frequently mentioned reason for rejecting cheeses with changes in composition.

For salt-reduced, low-fat and fiber-enriched cheeses some participants expected them to taste bad and were not willing to compromise pleasure to obtain a health benefit they considered they did not need. According to Bimbo et al. (2017),



**Figure 3.** Laddering plot of consumer motivations for buying cheese with health benefits.

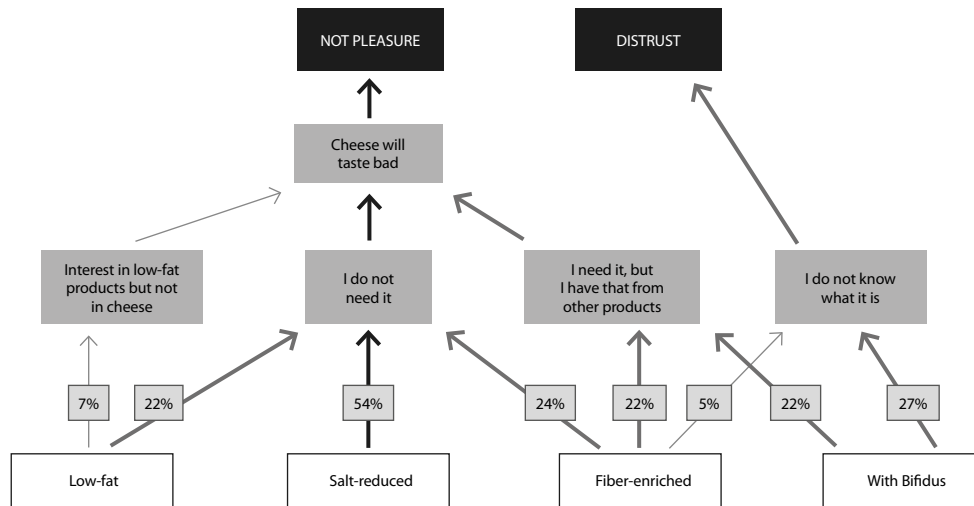


Figure 4. Laddering plot of consumer motivations for not buying cheeses with health benefits.

the presence of nutrition claim may generate negative effects on consumers' perceived pleasantness.

Some of the participants were interested in fiber, bifidus and low-fat, but preferred to obtain them from other kinds of product and not from cheese. Finally, bifidus and fiber were the health benefits that caused people to distrust the product. The lack of knowledge about the effects of fiber and bifidus on health led these people to doubt their possible benefits.

In summary, the main reasons why Uruguayan participants would buy cheese with health benefits were to achieve a better quality of life and to look more attractive. But they were also concerned about both the pleasure and the real effect on health that the product could provide.

Accordingly, Ares et al. (2010) found that the main reasons why Uruguayan consumers choose yogurt were, among different benefits, healthiness and pleasure. The same basic motivations for buying health products were observed for consumers from other countries, like the United States, Denmark and Norway (Johansen, et al., 2011) and Italy (Annunziata and Vecchio, 2011). Urala and Lähtenmäcki (2004) found that Finnish consumers stated the same motivations for choosing among functional food alternatives but also gave other reasons, like convenience, price and familiarity.

According to Valls et al. (2013), consumers demand for health-enhancing foods has spurred in part because of socio-economic changes, such as the longer life expectancy, the rise of health care costs, the social costs of non-transmittable diseases, and the widespread desire for a better quality of life. In this context, the projections of overall cheese market outline a steady growth ascribable to different factors such as the change in consumers' lifestyle, the innovation in cheese types and their versatility and the broadening of applications of cheese in our diet and as an ingredient in food processing (Masotti, et al., 2018).

One limitation of this work is that gender and age are not variables studied. Bimbo et al. (2017) confirm that gender and age play an important role in explaining different patterns of acceptance in relation to identified combinations of carriers and ingredients. Willingness to use/purchase functional and nutrition-modified dairy products increases with age, as older consumers perceive higher rewards from consuming such food versions, and show more interest in health. The second limitation is that brand was not studied. A review made by

Bimbo et al. (2017) found that brand affects consumer's food choices when it is associated with nutrition and health claim.

## Conclusion

The use of laddering technique employed in this study allowed to explore consumer motivation with respect to functional cheeses.

Behind the choice of cheeses with a health benefit, consumers wanted to look more attractive and achieve a better quality of life. Meanwhile, expected lack of pleasure and distrust were the basic reasons people gave for rejecting a cheese with health benefits.

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