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European consumers' interest in nutrition information on (sugar-free) chewing gum

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ABSTRACT

Much consumer and public health research into nutrition labelling has explored the effects of information provision on consumer behaviour and how it can help consumers in making informed food choices. Among other things, it has been shown that European consumers' interest in and use of nutrition information varies greatly across country and product category. Chewing gum represents an understudied product category where little is known about whether consumers are interested in and would use nutrition information, let alone where they might want to access it due to small pack sizes limiting the space available to provide the information. The present study investigates European consumers (n = 3500) in seven countries and shows that while overall interest in nutrition information on chewing gum is relatively low, considerable differences can be observed with regards to users of regular versus sugar-free chewing gum, as well as with regards to low/medium versus heavy users. Sugar-free chewing gum users are more interested in general as well as specific nutrition information that is relevant for chewing gum, compared to regular chewing gum users. And low and medium user groups have a better awareness of which nutrients are relevant for chewing gum, compared to heavy users who appear less concerned about nutrition and health. The results provide insights into European consumers' attitudes towards nutrition information for chewing gum, and alternative sources of such information provision as pack size is a limiting factor in regards to this product.

1. Introduction

1.1. Motivation for the study

One of the pillars of the European Food Information to Consumers Regulation (EU 1169/2011) is the provision of relevant product information to achieve “a high level of health protection for consumers and to guarantee their right to information (...)”. The supra-national legislation regulates how, where and under what circumstances nutrition information is to be presented on-pack, following the general principle of the food law that is to provide a basis for consumers to make informed (food) choices.

Both as a response to and a driver of these regulatory developments, research into nutrition labelling has explored the effects of information provision on consumer behaviour and how it can help consumers in making informed food choices (Campos, Doxey, & Hammond, 2011; Grunert, Fernandez-Celemin, Wills, Storcksdieck genannt Bonsmann, & Nureeva, 2010; Grunert, Wills, & Fernandez-Celemin, 2010; Hersey, Wohlgenant, Arsenaault, Kosa, & Muth, 2013;

Hieke & Wills, 2012). Some of the major research questions include “what type of nutrition information are consumers interested in?” and “where and how should nutrition information be provided to consumers to be effective?”.

European consumers' interest in nutrition information has been shown to vary across regions, age and gender with women, parents of children living at home, older consumers and consumers in Northern and Central Europe relative to Southern Europe displaying a tendency to be more interested in nutrition information (EC Directorate General for Health & Consumer Protection, 2005; European Heart Network, 2007; Gregori et al., 2014; Grunert, Fernandez-Celemin et al., 2010). These variations are due to differences in the history of health policies and nutrition-related initiatives but also due to cultural differences (Grunert et al., 2012).

One of the most prominent frameworks in food label use has shown that for consumers to respond to nutrition information, they need first and foremost to be exposed to the nutrition information. Exposure only translates potentially into behaviour when the information is being perceived. Through understanding and liking, perception can

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ultimately lead to use, but the whole process is influenced by a number of factors, including interest in and knowledge about nutrition issues (Grunert & Wills, 2007).

The exact role of nutrition knowledge in label use, however, is yet to be understood. While some research has shown that it may facilitate label use by increasing its perceived benefits and by increasing its efficiency (Drichoutis, Lazaridis, & Nayga, 2006), other studies reported that nutrition knowledge has no significant effect on consumers' use of nutrition information on food labels, but is rather explained by a person's interest in healthy eating (Grunert, Wills et al., 2010) and personal motivation rather than knowledge-based personal ability to process such information (Hung, Grunert, Hoefkens, Hieke, & Verbeke, 2017).

Research has shown that consumers perceive nutrients as either qualifying (i.e., vitamins) or disqualifying (i.e., fat, sugars). For example, nutrients for which a strong interest has been reported are fat, energy, salt, and sugar, which are all so-called disqualifying nutrients (Grunert & Wills, 2007). Other studies reported that consumers consider the nutritional value of foods as important when selecting foods, particularly when it comes to qualifying nutrients (Hoefkens, Verbeke, & Van Camp, 2011). This type of nutrition information is likely to determine consumers' level of interest in various food products and appears to have a strong impact on food choice.

Interest in and use of nutrition information has also been shown to vary across food product categories (Grunert, Fernandez-Celemin et al., 2010). One reason for this could be that, in the minds of consumers, not all foods are perceived as equally important with respect to health, i.e. to have an (equal) potential impact on one's health. This likely affects whether or where consumers search for nutrition information for different products. In addition, the provision of nutrition information through packaging is not evident for all types of foods, owing to different reasons, the most obvious one being the lack of packaging (e.g., in case of unpacked products), or products with little or relatively small packaging. A growing body of literature focusses on alternative ways to present nutrition information, from in-store/on-shelf information provisions (Freedman & Connors, 2010; Seymour, Yaroch, Serdula, Blanck, & Khan, 2004) to online provisions, e.g. via retail websites (Epstein et al., 2016; Stones, 2016) and app-based nutrition information provision (Dimitriou et al., 2017). There is, however, little research available on where consumers might like to find and access nutrition information if not available on-pack.

1.2. Scope on chewing gum

A very specific type of food product is chewing gum for which there is evidence that it may not be considered by consumers as a 'food' as such as it is not ingested (Gregori et al., 2014), and therefore perceived as less important in terms of contributing to one's health. Furthermore, chewing gum packaging does not leave much room to provide detailed nutrition information on-pack. A European food label audit showed that product categories such as chewing gum, spices, tea and coffee rarely carried the tabular nutrition labelling (Storcksdieck genannt Bonsmann et al., 2010), due to limiting factors such as pack size as well as the requirement to display information in several languages on-pack. Under the new European Regulation (EU 1169/2011), nutrition information is now mandatory on every pre-packaged food that makes a nutrition or health claim. Sugar-free chewing gum hence is required to provide nutrition information because of the claim made on-pack. Alternatively, manufacturers can decide not to label the chewing gum as "sugar-free" which in turn would eliminate relevant information to consumers who prefer and/or predominantly purchase sugar-free chewing gum.

Recent research shows that a vast majority of European consumers use chewing gum regardless of their nationality, age or gender. Intakes are similar across country with an average of 1.87 g per day. This corresponds to about 0.75 pieces per day in children and 0.98 pieces per day in adolescents and adults, respectively (Hearty, Lau, & Roberts,

2014). The use of chewing gum has long been advocated as a result of research into health aspects such as the prevention of dental caries (Deshpande & Jadad, 2008; Ribelles Llop, Guinot Jimeno, Mayné Ación, & Bellet Dalmou, 2010), appetite regulation (Hetherington & Boyland, 2007; Hetherington & Regan, 2011) and positive effects on stress and performance (Onyper, Carr, Farrar, & Floyd, 2011; Smith, Chaplin, & Wadsworth, 2012). Particularly the use of polyol-containing chewing gum has been shown to be beneficial for dental health. Chewing sugar-free gum increases the production of saliva, which can help neutralize plaque acid, wash away food debris and demineralise tooth enamel to help strengthen teeth. Research evidence supports using polyol-containing chewing gum as part of normal oral hygiene to prevent dental caries (Deshpande & Jadad, 2008; Ribelles Llop et al., 2010). Additionally, chewing gum for about 45 min can suppress hunger and cravings for snacks and can promote the feeling of fullness (Ribelles Llop et al., 2010) which may make it a useful adjunct to weight management for some individuals (Hetherington & Regan, 2011). Lastly, chewing gum has been found to reduce stress (both at work and outside work), fatigue, anxiety and depression (Smith et al., 2012) and lead to a more positive mood (Hetherington & Regan, 2011; Smith et al., 2012).

To date, little is known about consumer attitudes towards chewing gum, with the exception of a study on packaging design aspects and their influence on people's willingness-to-buy (Rebollar, Lidón, Serrano, Martín, & Fernández, 2012), a comparison of methods to test flavour and texture attributes of chewing gum (Galmarini, Symoneaux, Visalli, Zamora, & Schlich, 2016) and consumer product liking/rating after one time only vs. repeat exposure (Galmarini, Symoneaux, Visalli, Zamora, & Schlich, 2015).

As part of the research into functional foods, consumer attitudes towards chewing gum (versions containing xylitol, more precisely) have been studied somewhat more frequently during the past decades. Urala and Lähteenmäki (2004) found that Finnish consumers who obtained reward from using functional foods were most willing to use all functional food examples given in the study, except for chewing gum and sweets with xylitol. Consumers who saw functional foods as part of a healthy diet and did not perceive risks connected to functional foods were in fact less willing to use sweets and chewing gum with xylitol (Urala & Lähteenmäki, 2004). A follow-up study in 2007 by the same authors revealed that the willingness of Finnish consumers to use chewing gum and sweets with xylitol had slightly decreased whereas the perceived reward from eating (other) functional foods increased strongly and on a statistically significant level. Consumers were even more willing to use the functional food examples listed in the survey, except chewing gum and sweets with xylitol (Urala & Lähteenmäki, 2007). These findings are in line with an Australian study by Williams and colleagues who reported that health claims on tea, yoghurt, soup and brown bread received significantly higher ratings on intention to try than similar claims made on chewing gum, ice cream, margarine and meat replacers (Williams, Ridges, Batterham, Ripper, & Hung, 2008). While these studies thus suggest that chewing gum is perceived by consumers as a less suitable carrier for functional ingredients and related claims, they reveal little about consumers' actual interest in the product category as such, and in nutrition information on this product in specific. Aside from these studies and despite the potential health benefits of chewing gum, to date there is little data available on European consumers' interest in and knowledge about nutrition information related to chewing gum. This includes the type of nutrients that consumers are most interested in.

1.3. Study objectives

Combining the above with a historically low prevalence of nutrition information and labelling on chewing gum packaging (i.e. low exposure), several determinants of the [nutrition label effectiveness] framework by Grunert and Wills (2007) are unknown. To date, it is not

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