A consumer segmentation of nutrition information use and its relation to food consumption behaviour

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ABSTRACT

Consumers need information such as nutrition tables to assess the nutritional value of a food product. Although a broad range of studies has examined consumers' attention, perception and use of nutrition tables, relatively little is known about what types of consumers use what kind of nutrition information. Therefore, using data from the Swiss Food Panel, we conducted a cluster analysis of nutrition information usage and health and nutrition interest to determine whether consumers could be segmented into specific groups. We identified four segments, which we labelled Official Information Users, Internet Users, Moderate Users and Uninterested. We then determined the segments' demographics, food frequencies and perception of food. Based on our findings, we provide suggestions for targeted interventions that stimulate healthy food choices among these four segments. Our findings imply that nutrition education or the improvement of nutrition labels is unlikely to stimulate nutrition information usage among all consumer types; some consumers may rather benefit more from environmental cues that prime healthy food choices.

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Introduction

As it is difficult for consumers to determine the nutritional value of a food product by just looking at the packaging or tasting the product, explicit nutrition information needs to be provided on food products (Golan et al., 2001). Nutrition tables provide useful information on the healthiness of food, and consumers are encouraged to use them to evaluate and compare food products while purchasing and consuming them. In some countries, such as in the US and in EU member states, nutrition labelling, in the form of nutrition fact tables, is mandatory on prepackaged foods (EU No 1169/2011, 2011; NLEA, 1990). However, consumers appear to find it difficult to interpret the information provided in nutrition tables (see Cowburn and Stockley, 2005; Grunert and Wills, 2007 for reviews).

Besides nutrition tables, there are other sources of information available for consumers to help them choose healthy food products, such as websites on dieting and healthy eating, recommendations made by dieticians and medical doctors or information and recommendations provided by family and friends. However, little is known about the type of nutrition information and sources that consumers use, the type of food consumption patterns related to nutrition information usage and what motivates consumers to use nutrition labels or other information sources. This study aims to shed light on these issues.

Previous studies about nutrition labels and consumers' perception, understanding and usage can be categorised in four formats. First, many studies have investigated psychosocial, external and demographical determinants of nutrition label usage (mostly self-reported use) (e.g., Grunert et al., 2010; Guthrie et al., 1995; Hess et al., 2012). Second, other studies have examined effects of different formats of nutrition labels on consumers' understanding, attitudes and (self-reported) usage (e.g., Goldberg et al., 1999; Levy et al., 1996; Visschers and Siegrist, 2009). Third, a smaller number of studies have looked at the relation between nutrition label usage and dietary behaviour or food consumption, either self-reported or observed food consumption behaviour (e.g., Graham and Laska,2012; Guthrie et al., 1995; Ollberding et al., 2010). Fourth, more recently, a number of studies have investigated consumers' visual attention for nutrition labels on products because attention was recognised as a key factor in using this type of information (e.g., Graham and Jeffery, 2012; Graham et al., 2012; van Herpen and van Trijp, 2011; Visschers et al., 2010).

Based on the results of previous studies, the most important determinants of nutrition label usage and the most promising design of nutrition information can be identified and then applied in communication and education campaigns to encourage consumers to use nutrition labels and make healthy food choices. Such an approach assumes that all consumers are influenced by the same determinants and need to be stimulated to use nutrition labels in the same way. However, consumers mostly do not respond in the same way and need different communication approaches to be informed effectively. An approach in which different communication

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strategies are targeted at different consumer segments has been found to effectively influence food consumption behaviour (Verbeke, 2008). In a targeted communication approach, the information is made more personally relevant and is therefore more likely to be accepted by the targetpopulation (Kreuter and Wray, 2003). For example, consumers who are positive about nutrition labels but report that they are unable to use them may be facilitated by showing these consumers how to interpret this type of nutrition information. Another consumer segment may not like and use nutrition labels but prefer information from dieticians. They should be motivated to contact a dietician and advised how to do so.

Studies on the segmentation of consumers based on their nutrition information usage are still very rare (Grunert and Wills, 2007; Souiden et al., 2013 for a typology of consumers regarding nutrition labels). In developing targeted communication materials to stimulate healthy eating, it would be very helpful to know more about the characteristics of consumers who are already using nutrition table information or other information sources and to know more about those who do not use such information. More interestingly, it would be valuable to determine whether differences exist between consumer groups who do not utilise nutrition information in their food choices and those who do refer to them.

To the best of our knowledge, only one other study has investigated a consumer segmentation of nutrition label use. Souiden et al. (2013) examined a sample of the Canadian population in terms of their usage, understanding, attitudes and ability to use nutrition labels; their health status, health consciousness and nutrition knowledge; and their perceived importance of nutrition, price and taste. The authors identified three clusters: the "Nutrition Savvy" cluster, the "Sceptical and Less Committed" cluster, and the "Nutritionally Perplexed" cluster. The study by Souiden et al. (2013) showed that consumers can be segmented based on their nutrition label usage and attitudes, and that such a segmentation can provide valuable information for a targeted communication approach. The study however has two limitations, which we intended to circumvent in our study. Firstly, Souiden et al. applied a convenience sampling method. This yielded a sample in which women were overrepresented and which contained relatively young respondents and many highly educated respondents. Secondly, the study by Souiden et al. used respondents' perceived health status as an indicator for the need to use nutrition labels or to improve the respondents' diet and did not include a direct measure to check this, such as a food consumption assessment.

In the present study, we investigated a consumer segmentation of nutrition information usage in a large population sample. We aimed to determine the differences in food consumption between the identified clusters. Nutrition information usage was broadly defined: we assessed not only the use of nutrition tables, but also the use of other sources of nutrition information, such as the Internet and dieticians. In addition, we investigated to what extent the identified segments differed regarding their demographical variables, consumption of a number of food items, and liking and health perception of certain foods. In the remainder of this Introduction, we describe the relation of nutrition information usage with several important psychological variables and with dietary behaviour.

Important variables related to nutrition information usage

To provide meaningful clusters in a segmentation study or a cluster analysis, the selection of the variables should be theory-based (Aldenderfer and Blashfield, 1984). Therefore, we based our cluster analysis on respondents' self-reported nutrition information usage and on two important determinants of nutrition

information usage derived from relevant frameworks and previous findings on this topic.

First, nutrition information can only influence consumers when they pay attention to this information (Grunert and Wills, 2007). Their attention can be captured using a top-down approach, i.e., by increasing people's interest in nutrition information or their motivation for paying attention to such information. Alternatively, people's attention can be captured by increasing the salience of the nutrition information, i.e. a bottom-up approach (Visschers et al., 2010). As we could not directly assess consumers' attention to nutrition information or the saliency of the nutrition information on the products which our respondents consumed, we investigated our respondents' interest in nutrition information. Interest in nutrition information and paying attention to such information have been found to be strongly related (Guthrie et al., 1995).

Second, the awareness of the healthiness of one's diet and lifestyle—or health consciousness—has been found to be an important determinant of nutrition table use. A stronger awareness of the relation between diet and health has been associated with more nutrition label usage (e.g., Hess et al., 2012; Nayga, 2000). In addition, consumers who consider nutrition as important while shopping are more likely to pay attention to nutrition labels (e.g., Guthrie et al., 1995; Hess et al., 2012; Nayga, 2000).

Nutrition information usage and dietary behaviour

Some survey studies have investigated the relation between nutrition label usage and diet quality (Coulson, 2000; Graham and Laska, 2012; Guthrie et al., 1995; Kristal et al., 2001; Ollberding et al., 2010). Greater nutrition label usage was found to be related with a healthier diet, e.g. lower energy intake, lower fat intake and higher fruit and vegetables intake. However, the results seem to differ between studies. The study by Coulson (2000), for example, showed that nutrition label usage was related to a lower fat intake and a higher fruit intake, but not to vegetable intake, whereas Kristal et al. (2001) only found a positive relation of nutrition label usage with fat reduction and not with fruit and vegetable consumption. The different dietary assessment methods in thesestudies may explain these inconsistencies. To the best of our knowledge, our study is the first in which consumer segments on nutrition table usage have been related to food consumption. Both nutrition information usage and food consumption were assessed using self-report measures.

Method

Procedure and sample

The Swiss Food Panel Questionnaire is a longitudinal study of Swiss consumers' food consumption behaviour and food-related attitudes. In the present paper, the results of only the first wave (collected in Spring 2010) are reported. The questionnaire was sent by postal mail to 20,912 household addresses in the German-speaking and French-speaking parts of Switzerland that were randomly selected from the telephone book. The addressees were asked to return the completed survey using the enclosed stamped and addressed envelope. A reminder containing another copy of the questionnaire was sent five weeks later to those who had not yet returned the questionnaire. The response rate was 30.1% (N = 6290). Participants with more than 20% missing items relevant for our main research questions were deleted from the sample. This resulted in a final sample size of 6061 participants.

Our final sample consisted of 52% women (n = 3152) and 47.7% men (n = 2892). Seventeen respondents (.3%) had not reported their gender. The mean age of the sample in 2010 was 54 years