The Influence of Nutritional Information in Food and Drink Products on Young Consumers' Purchase Intent

A influência da Informação Nutricional em Alimentos e Bebidas na Intenção de Compra de Jovens Consumidores

Raquel Bernardon Toigo Giehl(1); Marcelo Gattermann Perin(2);

Marcia Dutra De Barcellos(3); Cláudio Hoffmann Sampaio(4)

1 Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, RS, Brasil.
  E-mail: raquel.bernardon@pucrs.br
2 Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, RS, Brasil.
  E-mail: mperin@pucrs.br
3 Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brasil.
  E-mail: marcia.barcellos@ufrgs.br
4 Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, RS, Brasil.
  E-mail: csampaio@pucrs.br

Endereço correspondente / Correspondence address
Marcelo Gattermann Perin
Pontifícia Universidade Católica do Rio Grande do Sul
Av. Ipiranga, 6681 – Bairro Partenon
CEP 90619-900 - Porto Alegre, RS, Brasil

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Abstract

The importance of packaging and labeling as media, and as a means of persuading customers has grown. In this context, product nutritional information becomes an important packaging element to be considered during consumer's decision making process. Based on this, the objective of this paper is to evaluate the effect of nutritional information the food package on consumer purchase intention. To this end, a descriptive survey was conducted with 430 young consumers in South Brazil. Results indicate that the information available on food labels influences purchase intent. Energetic value (calories) and trans fat revealed themselves to be the most significant attributes at the moment of purchase. We compare the effects from nutritional information highlighted and the mandatory nutritional information table in the label. Moreover, important statistical differences were found between consumer groups, in accordance with their sex and age. Managerial implications are drawn to the food and drink industry.

Keywords: Nutrition, Information, Food Consumers, Purchase Intent

Resumo

A importância da embalagem e rotulagem como mídia, e como um meio de persuadir os clientes tem evoluido. Neste contexto, a informação nutricional do produto torna-se um elemento de embalagem importante a ser considerado durante o processo de tomada de decisão do consumidor. Com base nisso, o objetivo deste trabalho é avaliar o efeito da informação nutricional de embalagens na intenção de compra do consumidor. Para tanto, foi realizado um levantamento com 430 jovens consumidores no sul do Brasil. Os resultados indicam que as informações disponíveis nos rótulos de alimentos influenciam a intenção de compra. O valor energético (calorias) e a gordura trans revelaram-se como os atributos mais significativos no momento da compra. Comparou-se os efeitos da informação nutricional em destaque e da tabela de informação nutricional obrigatória do rótulo. Além disso, diferenças estatísticas importantes foram encontradas entre os grupos de consumidores, de acordo com seu sexo e idade. As implicações gerenciais para a indústria de alimentos e bebidas são apresentadas.

Palavras-chave: Nutrição, Informação, Consumidores de Alimentos, Intenção de Compra

Introduction

The intense and constant change in the contemporary world has a strong influence on consumer's needs and desires, which directly influence the way companies must conduct their product marketing strategies. Consumers are exposed to a barrage of advertisements, the products are more complex than they used to be and competition is more intense (Kniazeva & Belk, 2010). In this context, the importance of packaging and labeling as media, and as a means of persuading customers has grown. According to different studies, packaging and labeling can take on a role similar to other media elements of marketing (Finco et al., 2010; Bublitz & Peracchio, 2015).

The purchase intention (PI) for some kinds of consumer products (especially the ones consumers do not think much before entering the store or supermarket) is frequently determined by the variables presents at the point of sale (Kniazeva & Belk, 2010). According to Underwood et al. (2001), consumers are more likely to spontaneously imagine aspects such as product appearance, flavor and aroma when they see images and information on the packaging. In other words, consumers create expectations about the product through the package. In fact, consumer PI depends on how much a consumer hopes that a product can satisfy his/her expectations as to the use of the product (Chrysochou & Grunert, 2014).

Thus, packaging takes on greater relevance in a consumer's purchasing decision making process, because it plays the role of media when the consumer is truly deciding on their purchase at the store (Huang & Lu, 2016; Silayoi & Speece, 2007). Nevertheless, it must be taken into consideration that people respond differently to different configurations of packaging (Underwood et al., 2001), making segmentation an important factor to determine how consumers will react to packaging elements (Bublitz & Peracchio, 2015).

In the specific case of food products, in so far as consumers have become more concerned with personal health, it has been assumed that increased knowledge regarding nutritional matters has changed consumer food preferences (Wright et al., 2008). Along these same lines, product nutritional information (NI) becomes an important packaging element to be considered during consumer's decision making process (Granage et al., 2003). Specifically, NI affects food choices and can even affect choices between different brands (Bublitz & Peracchio, 2015).

In general terms, streams of research concerning the relationship between consumers and NI fundamentally seek to identify the profile of consumers who use the NI, how they use it, and its influence on their decision making process at the time of purchase (Stuart, 2010). Aschemann-Witzel and Hamm (2010) shows that foods labeled with nutrition and health claims are clearly preferred, but that the determining factors of choice differ between food categories. Choice was positively influenced by perception of

healthiness of the product and negatively influenced by selection of the habitually chosen brand, whilst age, gender and credibility of the claim were of no importance. For instance, Dean et al. (2011) found that adding health claims to products increases their perceived healthiness. The paper concludes that healthiness perceptions relating to products with health claims may vary between men and women, old and young and between countries. It is also important to note that the companies provide more nutritional information when their products are more healthfulness (Jensen & Ronit, 2013).

Therefore, this article presents the details of a study that sought to evaluate the effect of NI in the food package on consumer PI. The study is based on conceptual models from Drichoutis et al. (2005, 2006, 2007) and Mannell et al. (2006) regarding consumer behavior towards food labeling.

Consumer Behavior and Nutritional Information

Among the main theoretical models which have sought to explain the many facets of the NI influence on the decision making process at the moment of purchase, the work of Drichoutis et al. (2005) is highlighted. For these authors, the factors that affect the NI use can be grouped into the following categories: a) individual characteristics; b) situation, attitude and behavior; c) involvement with the class of product; and d) nutritional knowledge.

Individual characteristics, especially age, sex and level of education, are reported in the literature as factors which affect whether or not the potential consumer reads the NI on the packaged food labels (Heiman & Lowengart, 2014; Mannell et al., 2006; Govindasamy & Italia, 2000). Elderly consumers encounter difficulty in interpreting the labels, finding them unclear and incomprehensible, and tend to read ingredient lists, while younger consumers read ingredient lists and NI or only NI (Lalor et al., 2011; Kim et al., 2001). Level of education appears as a strong factor in PI for products evaluated as more or less healthy. Consumers with a higher level of education demonstrate greater knowledge and comprehension of the nutrients appearing on the nutritional table (Hausman, 2012). The use of NI by men and women consumers differs with reference to the degree of importance that each consumer gives them. In general, women use food labels to make purchasing decisions more than men do (Heiman & Lowengart, 2014).

Among the factors categorized by Drichoutis et al. (2005), such as situation, attitude and behavior, the time available to shop is, for some researchers, a factor which limits consumers' search for NI. In other studies, the variables of profession, income and time spent shopping in supermarkets appeared as behavioral factors in NI use (Mannell et al., 2006). The higher consumers' income is, the greater their acceptability and need to read the NI. For these consumers, NI on packaged food labels is a source of: a) useful and necessary information; b) accessibility and convenience in choosing

between foods; c) trustworthy information about the product, much more than their own knowledge about it; and d) experience with new products (Bublitz et al., 2013). Also, consumers refer to calories, sodium, fiber and fat, when asked to list which information they consult the most at the time of purchase (Drichoutis et al., 2006).

Consumers' positive attitude regarding the quality of their daily diet increases the use of nutritional information on food packaging, as they search for more healthy foods, are aware of eating habits or follow medical recommendations and dietary restrictions (Heiman & Lowengart, 2014). Awareness of the direct relationship between diet and disease prevention can also positively influence NI use, as seen in the choice of products with lower caloric content (Drichoutis et al., 2005). Consumers of organic products can also be considered as advocates of the search for NI on food labels (Lee & Yun, 2015). Cerjak and Tomić (2015) also found that people can trust in producers' labels regarding functional properties of the foods presented in the labeling.

To McLean-Meyinsse (2001), type of home is another factor that influences NI use. Households with pre-school age children and young couples are more likely to use NI. On the other hand, size of domicile appears in several studies as a negative factor in NI use (Drichoutis et al., 2005).

In the search for and use of NI, opposing replies were given by those responsible for buying food and those responsible for preparing meals (Kim et al., 2001). Those responsible for buying food were more concerned with using NI to make their choices, while those responsible for preparing meals consider flavor more important than nutrients (Harker et al., 2010; Drichoutis et al., 2005).

Geographical location of the home was another factor with an impact on NI use. Consumers of both rural and urban areas describe NI use in decision making as important, especially with reference to fat content (Lin & Lee, 2003).

In the realm of factors of involvement category, the importance consumers place on some food attributes has been measured with the aim to evaluate the effect of these attributes on the decision making process for food purchases (Drichoutis et al., 2005). For consumers who generally place greater importance on attribute of price, NI use in the decision making process is expected to be rare or non-existent. In these cases, it is important to emphasize that, when it is used, the only information that appears as relevant is percentage of fat (Harker et al., 2010). This can be explained by the fact that consumers who place great importance on the price attribute are looking for price information, inhibiting them from selecting through NI use and/or even avoiding an overload of information when making the purchase decision, contrary to what occurs with consumers who consider nutrition the most important attribute (Nayga, 2000).

Nutritional knowledge, for its part, can facilitate NI use, due to the ease of interpreting and identifying the benefits provided by the food by reading the nutritional label. Initial studies have indicated that consumers with nutritional knowledge use it

in their choice of nutrients according to their dietary needs (Cooke & Papadaki, 2014). For Sanlier and Karakus (2010), the search for NI on food labels is directly associated to their level of nutritional knowledge (Bublitz et al., 2013). Kim et al. (2001) have already confirmed the positive effects of nutritional knowledge on NI use.

Despite the use of NI, it is also important to understand how NI can influence purchase intention.

Purchase Intention

According to the Theory of Planned Behavior, intention can be understood as a cognitive representation of an individual who is ready to perform a behavior and is preceded by the attitude to the behavior, which refers to the degree to which a person has formed an assessment of favorable or unfavorable behavior (Ajzen, 1991). Intention is motivated by factors that affect behavior, including the indicators of difficulty, the degree to which people are willing to try, and the amount of effort they are planning to exercise to perform the behavior. In this way, the stronger one's intention to engage in a behavior is, the more likely its performance will be (Bamberg et al., 2003).

To verify how NI can influence purchase intentions, we based our assumptions on the hierarchy of effects model of advertising (Lavidge & Steiner 1961). Specifically, based on this model, information can increase purchase intention when it attracts the attention the consumer, promotes positive attitudes to the product and not direct attention to competitive products.

Based on this, an inclusion of new information on the product (e.g., nutritional information) can drive the attention of the consumer to this information and increase the positive attitudes through the product. Based on theory of planned behavior, a positive attitude through the product can influence a positive intention, so we suppose that the presence of NI can positively influence the purchase intention. Based on this we present the following hypothesis:

H1: The presence (vs absence) of nutritional information positively influence consumer purchase intention.

Method

In order to evaluate the effect of the NI on consumer PI, we decided to conduct a experimental study with young consumers of selected food products.

Design. We used a single factor within subjects design. Specifically, we manipulated the NI on three conditions: without the nutritional table and without additional nutritional information; without the nutritional table, but with additional nutritional information; with both the nutritional table and additional nutritional information.

In order to investigate NI influence on PI, images of different products were used, with and without NI on the packaged food labels. This technique followed the standard used in other empirical studies to measure PI for different configurations of products (e.g., Sen et al., 2006; Chrysochou & Grunert, 2014). To this end, two products for which the population reportedly observed NI – Pepsi Light soft drink and Negresco (a popular Brazilian cookie, similar to Oreos) – both had their respective NI extensively discussed during the a exploratory step through in-depth interviews with subjects of the same population of the experimental study. The images of the packages were manipulated so that they would either completely or partially show the NI originally presented on their respective true labels. The label variations for the Pepsi product were (see Appendix): Pepsi Light (without the graphic "zero sugar" and without the nutritional table), Pepsi Light Zero Sugar (without the nutritional table) and Pepsi Light Zero Sugar with the nutritional table. The label options for the Negresco product were (see Figure 2): Negresco (without the graphic "0 Trans" and without the nutritional table), Negresco 0g Trans Fat (without the nutritional table) and Negresco 0g Trans Fat and with the nutritional table. To avoid a possible bias caused by the sequence of images in the rationale or choices of the respondents, we used different combinations in the sequence of the images presented to the subjects.

Participants. The participants were 430 undergraduate students in a Business Administration course (62.1% male, with age between 17 and 35 years old). Household income for the sample's participants was high, considering Brazilian standards, with 39.8% earning more than USD 1,500. Of the 432 interviewed, 79.8% declared to be engaged in regular professional work.

Procedures and measures. The data was collected directly from the respondents, in a laboratory with pencil and paper. It should be noted that each student replied to the questionnaire always evaluating the two products being studied – Pepsi and Negresco.

First of all in the study, respondents were asked to name a food product for which they normally consult the NI. Considering the product they named, the respondents were asked to answer questions about their understanding regarding a specific set of NI on a five point scale varying from "no comprehension" to "complete comprehension". The list of NI respected the group of mandatory information (carbohydrates, protein, total fat, saturated fat, trans fat, dietary fiber and sodium), but it also included optional information (no added sugar, light, diet, vitamin-enriched, source of calcium, source of minerals) according to Brazilian legislation.

Following, the subjects faced questions regarding the importance of each piece of NI listed in the first section on a five point scale, from "not important" to "very important". This section also included questions about the source (Nutritionist, Magazines/Newspapers, Internet, Radio/Television, Food Labels/Packaging or Other) and the moment of consulting the information about nutrition (shopping or preparation).

In the sequence, the participants were exposed to two questions about the respondent's PI regarding soft drinks and cookies ("How likely are you to buy some kind of soft drink on your next trip to the supermarket?"; "How likely are you to buy cookies on your next trip to the supermarket?"). Questions were on the page before the figures, with the same aforementioned five point scale. The purpose of these questions was to record the respondent's purchase intents of the products being analyzed, without their having seen the labels, for later comparison.

After, the subjects were presented to the images of the products in the manipulation of the NI. In the sequence of each image it was asked the PI intention of the participants through the adapted two items used to measure PI before the manipulation.

In the fourth and last section, information related to the respondents' individual characteristics was requested.

Analysis and Discussion of the Results

With reference to the study's main objective, which was to evaluate levels of knowledge and NI importance, descriptive statistical tests were used, such as average and standard deviation. In order to investigate the differences among the groups based on individual characteristics (sex and age) regarding the influence of NI on consumer PI, the t and ANOVA tests were applied, with Tukey's Post-hoc test. These results are described in the next sub-section.

Comprehension of and Importance Given to Nutritional Information

Initially, we considered the average reported consumer comprehension of the NI present on the packaged food labels, followed by an evaluation of the average importance (Table 1). In general terms, the level of comprehension was above the intermediate position on the scale, which denotes a tendency towards a position of comprehension that is moderate to high for both the mandatory and optional information on the food labels. Exceptions to this were the items "Sodium" and "Minerals". The most understood mandatory NI was "Energetic Value (Calories)", followed by the information from the group of optional NI, "No added sugar" and "Light".

Table 1. Average Comprehension and Importance

	Information	Comprehension			Importance		
	Nutritional	N	Average	SD	N	Average	SD
Mandatory	Energetic Value (calories)	421	**3.70**[a]	1.03	426	**3.72**[a]	1.39
	Carbohydrates	429	3.43	1.15	430	3.18[a]	1.36
	Protein	429	3.45	1.14	423	3.22	1.39
	Total Fat	429	3.29	1.19	427	3.38[a]	1.45
	Saturated fat	430	3.06	1.25	429	**3.47**[a]	1.47
	Trans fat	429	3.25	1.27	427	**3.61**[a]	1.48
	Dietary fiber	427	3.13[a]	1.23	429	3.05[a]	1.42
	Sodium	425	2.75	1.21	421	2.43[a]	1.30
	Section Average		*3.26*			*3.25*	
Optional	No added sugar	427	**3.55**	1.31	430	2.85[a]	1.53
	Light	430	**3.49**	1.24	430	2.87[a]	1.53
	Diet	430	3.42	1.23	430	2.65[a]	1.49
	Vitamin Enriched	428	3.29[b]	1.23	428	3.07[a]	1.40
	Source of calcium	429	3.22	1.27	427	2.81	1.34
	Source of minerals	429	2.86	1.18	428	2.7	1.39
	Section Average		*3.05*			*2.82*	

a – significant differences were found between groups formed by men and women, young people and adults in the application of ANOVA.

b – significant differences were found between groups formed by young and adult men in the application of ANOVA.

In order to investigate the differences in the comprehension levels due to individual characteristics, the ANOVA test was applied to four groups, formed as follow: men between 17 and 20; women between 17 and 20; men between 24 and 35; and women between 24 and 35. The intention, in this case, was to form groups of extreme characteristics, especially for the age variable. Note that differences in comprehension related to differences in sex and age were verified for only two types of NI: "Energetic Value (Calories)" and "Dietary Fiber". In addition, only one NI item demonstrated a difference in average understanding among men of different ages: "Enriched with Vitamins". This data denotes only slight influence of the variables of sex and age in the level of NI comprehension among those interviewed.

With reference to the importance of the NI in Table 1, in general terms, the importance given to information included in the mandatory group was shown to be greater than that given to the optional information. It might be suggested that this difference in importance was possibly influenced by the legal requirement itself, which increased the frequency of the set of mandatory information on the products' food labels. It is also important to emphasize that all the NI, with the exception of three ("protein"; "source of calcium"; and "source of minerals"), showed significant differences between the groups formed by the variables of sex and age, with the groups formed by women showing levels of importance greater than those of the men and growing according to age group for all the NI, with emphasis on "energetic value

(calories)", "trans fat", "saturated fat", "total fat", "dietary fiber" and "light". Therefore, it was found that these variables strongly influence the opinion of those consumers interviewed regarding the importance of NI. Note that the attributes considered more important for the group studied here are the same ones which have been pointed out in other studies also approaching differences in sex and age (e.g., Heiman & Lowengart, 2014; Drichoutis et al., 2007; Govindasamy & Italia, 2000).

As a form of complimentary information, we checked on the most frequent sources of NI used by those interviewed, as well as when they seek this information. It was observed that those interviewed generally consult the "packaged food labels" (3.46) in order to obtain information about nutrition, and that the "Internet" (2.83) and "radio/television" (2.82) are other sources of information considered by those interviewed. In terms of the moment they seek out this information, a greater intensity was identified at the moment of purchase (3.24), with 25.3% of those interviewed responding that they "always" consult NI at the time of purchase. Consulting the NI at the time of preparation/consumption was shown to be less significant (2.89).

Influence of Nutritional Information on Food Consumers' Purchase Intent

In order to verify the influence of the NI on food consumer PI, the t test was applied for each of the two products under evaluation, comparing their average PI in four distinct situations: a) prior PI for the product category; b) a label without any nutritional information; c) a label emphasizing only the main nutritional information; and d) a label emphasizing the main nutritional information and the mandatory NI, using the images presented in the Appendix.

Initially, the averages recorded for consumer PI for each of the abovementioned situations were analyzed, considering the entire sample as well as their division by sex (Table 2). Note that in the case of the soft drink product, the women showed a greater PI than the men in all situations, with differences observed not only with relation to sex, but also with reference to the age variable, considering the four groups of consumers analyzed. Regarding the cookie product, the only difference was found between the groups formed by men of different ages, specifically for this product's prior PI.

Table 2. Influence of Nutritional Information on Purchase Intent

| Configuration | General | | Men | | | | Women | | | |
| | | | Age: 17-20 N = 114 | | Age: 24-35 N = 87 | | Age: 17-20 N = 69 | | Age: 24-35 N = 52 | |
	Average	SD	Average	SD	Average	SD	Average	SD	Average	SD
Soft Drink	1.46[a]	.94	1.24	.63	1.46	.95	1.61	1.14	1.85	1.11
Pepsi Light	1.54[a]	.90	1.36	.79	1.59	.94	1.62	.93	1.84	1.03
Pepsi Zero Sugar (ZS)	1.65[a]	1.02	1.36	.77	1.82	1.05	1.77	1.09	2.13	1.28
Pepsi ZS + table	1.62[a]	.98	1.36	.72	1.79	1.06	1.75	1.06	2.06	1.18
Cookie	2.26[b]	1.20	2.51	1.21	2.06	1.06	2.32	1.19	2.23	1.41
Negresco	2.38	1.23	2.57	1.24	2.31	1.23	2.32	1.16	2.25	1.31
Negresco 0 Trans	2.49	1.22	2.59	1.22	2.33	1.21	2.59	1.12	2.44	1.41
Negresco 0 Trans + Table	2.47	1.27	2.61	1.31	2.39	1.21	2.50	1.22	2.50	1.43

a – Significant differences were found between groups formed by men and women,
young people and adults in the application of ANOVA.

b – Significant differences were found between groups formed by young
and adult men in the application of ANOVA.

Next, the Pearson *t* test (Table 3) was used to compare the average PI for the different simulated situations, as follows:

a) prior PI for soft drinks versus PI for a label reading "Pepsi Light";

b) PI for a label reading "Pepsi Light" versus PI for a label reading "Pepsi Light" emphasizing the nutritional information "Zero Sugar";

c) PI for a label reading "Pepsi Light" versus PI for a label reading Pepsi Light emphasizing the nutritional information "Zero Sugar" and with the table of mandatory NI; and

d) PI for a label reading "Pepsi Light" emphasizing the nutritional information "Zero Sugar" versus PI for a label reading "Pepsi Light" emphasizing the nutritional information "Zero Sugar" and with the table of mandatory NI;

e) prior PI for cookies versus PI for a label reading Negresco;

f) PI for a label reading Negresco versus PI for a label reading Negresco emphasizing the nutritional information "0g Trans Fat";

g) PI for a label reading Negresco versus the PI for a label reading Negresco emphasizing the nutritional information "0g Trans Fat" and with the table of mandatory NI; and

h) PI for a label reading Negresco emphasizing the nutritional information "0g Trans Fat" versus PI for a label reading Negresco emphasizing the nutritional information "0g Trans Fat" and with the table of mandatory NI.

We would like to point out that such combinations respected the gradual inclusion of the NI on the original labels of the products being considered.

Table 3. Influence of Nutritional Information on Purchase Intent – T test

	General	Men 17-20	Men 24-35	Women 17-20	Women 24-35	Importance Low	Importance High	Comprehension Low	Comprehension High
Soft Drink x Pepsi Light	**.03**	**.01**	.06	.79	.84	.16	.27	.65	**.06**
Pepsi Light x Pepsi Zero Sugar (ZS)	**.00**	.85	**.01**	.24	**.01**	.62	**.00**	**.04**	**.01**
Pepsi Light x Pepsi ZS + Table	**.01**	.87	**.02**	.16	**.03**	.54	**.00**	.11	**.01**
Pepsi ZS x Pepsi ZS + Table	.16	1.00	.53	.57	.16	.81	.21	.15	.46
Cookie x Negresco	**.00**	.39	**.00**	1.00	.83	**.01**	**.03**	**.03**	**.01**
Negresco x Negresco 0g Trans Fat	**.00**	.48	.75	**.00**	**.03**	.06	**.01**	.25	**.00**
Negresco x Negresco 0g Trans Fat + Table	**.02**	.61	.26	.07	**.02**	.13	**.05**	.08	.18
Negresco 0g Trans Fat x Negresco 0 Trans Fat + Table	.48	.87	.40	.13	.54	.90	.69	.62	.19

Observation: the values shown here represent the level of significance for the *t* test
in each group of consumers.

In general terms, considering the sample as a whole, a significant growth pattern can be seen (*p* < .05) in the PI averages until the inclusion of the mandatory NI table, at which point there is a slight, statistically no significant decrease (*p* > .05) in the PI. Specifically, there is difference in PI comparing the normal version of the labels and the version with NI highlights (Zero Sugar or 0g Trans Fat) plus NI table. However, comparing labels with NI highlights (Zero Sugar or 0g Trans Fat) with the labels that presenting these highlights plus NI table, there is no difference in PI.

It is also important to point out that in a more specific analysis, wherein the groups are divided according to sex and age variables, the general behavior manifests itself similarly, at least in absolute values. However, upon consideration of the significance of the different PI in different groups and situations, it is seen that the general behavior does not repeat itself in the specific cases. Once again, it was noted that sex and age moderate the influence of NI on consumer PI. It is important to highlight that the different results found for men and women and for older consumers are also shown in previous research (e.g., Heiman & Lowengart, 2014; Cooke & Papadaki, 2014).

As a form of complimentary information, t tests were conducted to compare the average PI for the same abovementioned combinations of purchase situations, but at this point the sample was separated into groups of high and low general NI comprehension and high and low general importance given to NI. These groups were created by calculating the average of the answers given by each person interviewed

for the different comprehension items, and in the same manner for the importance variables. In this case, those groups reporting greater importance and comprehension of the NI responded positively to the use of NI in the purchasing situations (once again with the exception of the inclusion of the mandatory information table). Therefore, it can be inferred that levels of importance given to and comprehension of NI also moderate its impact on PI.

Conclusions

Brands of food products use a wide array of attributes, color combinations, formats, designs, symbols and messages on their packaging with the aim to efficiently achieve their communication objectives, thereby increasing the potential of their packaging elements (Rettie & Brewer, 2000). To this end, these products' manufacturers must seek to understand how consumers respond to the configurations of the packaging and labels they use, while keeping in mind that one of the purposes of the packaging is to communicate information about the product, which can aid consumers as they make purchase decisions (Hausman, 2012; Silayoi & Speece, 2007).

In this sense, considering the set of NI as fundamental elements to be expressed on packaged food products (Sanlier & Karakus, 2010), this study sought to investigate the impact of this information on consumer PI. We found that NI information increase the PI, which supports the main hypothesis of the study. However, this effect is more pronounced with the NI that is highlighted than for the NI mandatory table. Also important to note that there is no difference on PI between products with labels that highlights a NI and labels that highlights this information plus NI table.

It was surprising to observe that the NI table, legally imposed on food manufacturers, did not exert any influence on consumer PI when another item of nutritional information was emphasized on the packaging, separately from the table. This observation also applied to the group of consumers reporting a high level of comprehension with reference to the NI. Such results are in agreement with the statements of Mojduszka and Caswell (2000), for whom the standardized NI are dispensed by consumers to the extent that they already see a product as being healthier from previous use.

Our study is in line with the findings from Grunert and Wills (2007) that found widespread consumer interest in nutrition information on food packages, though this interest varies across situations and products. Revising research conducted in 2003-2006 in the EU-15 countries on how consumers perceive, understand, like and use nutrition information on food label, the authors found that they like the idea of simplified front of pack information but differ in their liking for the various formats.

Additionally, we found the moderating influence of individual characteristic such as gender and age on consumer's NI consideration during the formation of PI. In general terms, women tend to have greater mastery of NI, placing greater importance on more specific information like "energetic value (calories)", "trans fat", "saturated fat", "total fat", "dietary fiber" and "Light". This can be attributed to the fact that male consumers generally do not believe that NI can help them achieve a more healthy diet. By contrast, women tend to check the list for ingredients and nutrients which will lead them to a healthier diet (Heiman & Lowengart, 2014; Mannell et al., 2006). These results also corroborate what has been postulated by Kim et al., (2001), and Bublitz et al. (2013) regarding the potentializing effect of consumer NI knowledge or comprehension levels on the use of this information during the establishment of their PI.

Our study advances the literature of food labels and NI by supporting that NI can increase the customer PI. However, the NI in the mandatory table is not so important than the NI information highlight in the label. In the same line, Droms Hatch (2016) also found that a small group of consumers use the NI in a restaurant menu, where the majority based the decision on taste and preference. Based on this, future studies can observe how this information can be highlighted in the label. For example, is there a better color or font to do this? What type of NI is better to be highlighted? Are people more focused in their body health more influenced by the NI table versus the NI highlighted?

Managerially, we consider that the increasing use of NI by consumers is in part related to their desire for healthier food products (e.g., Coulson, 2000; Dimura & Skuras, 2005). Nevertheless, incorporating consumers responses into packaging decisions, especially the group and arrangement of NI, tends to be a complex task, in so far as different consumers may not react to a configuration in the same way (Stuart, 2010; Silayoi & Speece, 2007). Thus, we consider that the relationship between consumer choices in many market segments and the information contained on the packaging, especially the NI, are a key theme to the development of food product marketing strategies. Based on this, food product managers can deserve attention to the main NI information that could be highlight in the label, since a NI table, although mandatory, is not important to create the customer's PI.

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Appendix

Figure 1. Packaging images – Pepsi Light

Pepsi Light

*Pepsi Light
Zero Sugar*

*Pepsi Light
Zero Sugar
Nutritional Table*

Figure 2. Packaging images – Negresco

Negresco

Negresco
0g Trans fat

Negresco
0g Trans fat and
Nutritional Table