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Consumer perspectives on the inclusion of nutritional warnings in retail food establishments

Perspectivas del consumidor sobre la inclusión de advertencias nutricionales en puntos de venta de comida

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ABSTRACT

The present work aimed to assess Uruguayan consumers support of the inclusion of nutritional warnings on four types of retail food establishments and to obtain consumer insights on how the warnings could be implemented in such establishments. For this purpose, an online survey was conducted with a non-probabilistic sample of 547 participants recruited via an advertisement on social media. Participants were requested to indicate their degree of agreement with the implementation of nutritional warnings in bakeries, delicatessens, fast-food restaurants and while ordering food online, and to provide ideas on how to include this information for each establishment. Results suggested that the inclusion of nutritional warnings in retail food establishments was positively perceived by participants. Participants highlighted that warnings should be highly visible to customers while making purchase decisions, so they become a relevant cue for making food choices. In particular, the retail display case and menu boards were identified as key locations for warnings in bakeries, delicatessen, and fast food restaurants, respectively. These results contribute valuable insights on how to implement the extension of nutritional warnings to unpackaged foods or foods made and packaged at the point of purchase.
Keywords: Food Away From Home; Food Labelling; Public Policy; Retail Food Establishments; Warning Labels.

RESUMEN

El presente trabajo tuvo como objetivo evaluar la percepción de los consumidores uruguayos en relación a la implementación de advertencias nutricionales en cuatro puntos de venta de comida y generar ideas sobre cómo podría implementarse esta medida. Se realizó un estudio online con una muestra no probabilística de 547 participantes, reclutados utilizando publicidad en redes sociales. Los participantes indicaron su grado de acuerdo con la implementación de advertencias nutricionales en panaderías, rotiserías, lugares de venta de comida rápida y sitios de pedidos online, y proporcionaron ideas sobre cómo incluir esta inforamción en cada punto de venta. Los resultados sugieren que la población tiene una perecpeción positiva sobre la inclusión de advertencias nutricionales en puntos de venta de comida. Los participantes destacaron la importancia de incluir esta información en un lugar visible al momento de elegir los productos, de forma que pueda ser tenida en cuenta al tomar las decisiones. En particular, las vitrinas y la cartelería/pizarras fueron identificados como lugares estatégicos para la inclusión de advertencias nutricionales en panaderías/rotiserías y puntos de venta de comida rápida, respectivamente. Los resultados proporcionan valiosa información para extender la inclusión de advertencias nutricionales a puntos de venta de comida.

Palabras clave: Advertencias nutricionales; Consumo alimentos fuera del hogar; Etiquetado de alimentos; Política pública; Puntos de venta de comida.

INTRODUCTION

Eighty-five percent of countries worldwide have implemented regulations to include nutritional information on pre-packaged foods on a compulsory or voluntary basis, mainly through nutrient declarations placed on the back side of pre-packaged foods[1]. However, the extension of nutrition labelling to unpackaged foods or foods made and packaged at the point of purchase is gaining increasing attention worldwide given the growing contribution of foods prepared outside of home to overall diet[2,3]. The increase in the consumption of foods away from home has been associated with an increase in the intake of total calories, total fat, saturated fat, trans-fatty acids, and sodium, and a decrease in the intake of fruits, vegetables and fiber[4,5].

To date, the implementation of nutrition labelling on unpackaged foods has been mainly focused on calorie labelling on restaurant menus[2]. So far, no consistent results have been found for the effectiveness of calorie labelling on triggering changes in food choice and nutrient intake. Some systematic reviews have shown that this approach may be effective in reducing the total energy content of foods ordered and consumed in the away-from-home environment[6,7], whereas others have pointed out that displaying calorie labels alone may have a limited impact on consumer behavior[8].

Research conducted in the United States has shown that the majority of consumers do not use menu calorie labelling when making their food choices in fast-food or full-service restaurants[9,10]. In this sense, one of the main concerns of posting calories on restaurant menus is that the average consumer may not be able to understand the information[11]. This matches results from several studies reporting that numeric nutrient declarations included on food packages are difficult to understand for consumers[12]. For this reason, front-of-package (FOP) nutrition labelling schemes providing a simple and visible summary of the nutritional quality of foods have gained increasing attention worldwide[13].

Nutritional warnings have recently emerged as a FOP nutrition labelling scheme to discourage consumption of foods with excessive content of nutrients associated with non-communicable diseases (NCDs)[14]. This FOP nutrition labelling scheme has been implemented as black octagons highlighting pre-packaged foods with excessive content of calories, sugar, fat, saturated fat and sodium, in several Latin American countries (Chile, Peru, Uruguay, and Mexico)[15,16,17,18]. An increasing body of evidence shows that nutritional warnings are easy to understand, facilitate the identification of foods with excessive content of nutrients associated with NCDs, and discourage consumers from choosing them[19,20]. In addition, warnings have been reported to be efficient at triggering changes in food choices, even immediately after their implementation[21,22].

Considering the increasing consumption of foods away from home, the extension of nutritional warnings to establishments selling unpackaged foods or foods made and packaged at the point of purchase should be foreseen. In this sense, it is worth highlighting that the restriction of nutritional warnings to pre-packaged foods was among the main concerns raised by the food industry during the public consultation held before the implementation of this public policy in Uruguay[23]. Industry representatives stated that restricting warnings to pre-packaged foods was discriminative as they would be regarded as less healthy than those sold at retail food establishments. In response to the comments received during the public consultation for the regulation, the Chilean government identified the extension of nutritional warnings to retail food establishments as a relevant topic for the medium-term policy agenda[24].

The extension of nutritional warnings to retail food establishments is particularly challenging as it requires deciding how to display information that can capture consumers' attention and serve as a relevant cue for making choices[25]. Retail food establishments such as bakeries, delicatessen, and fast food restaurants, offer a wide range of alternative approaches to display warnings. For this reason, considering consumer perspective on how to implement nutritional warnings in those establishments can reveal innovative and useful insights that may not be obtained by solely relying on experts[26]. In particular, an important advantage of this

approach is the opportunity to get closer to the needs and expectations of consumers.

So far, the only application of warnings in this setting is a regulation from the New York City Department of Health and Mental Hygiene that requires the inclusion of sodium warnings on the menus of chain restaurants, next to any food item containing more than 2.300 mg of sodium[27].

Objective of the study and context

The present work explored consumer perspectives on the inclusion of nutritional warnings in retail food establishments. Specifically, the objectives of the study were to: i) assess support of the inclusion of nutritional warnings in four types of retail food establishments (bakeries, delicatessens, fast-food retail and online food ordering) among Uruguayan consumers and ii) obtain consumer insights on how warnings could be implemented in such establishments.

The study was conducted in Uruguay, one of the Latin American countries with the highest prevalence of overweight and obesity (64.9% among adults)[28]. The country has recently approved a series of actions to improve diet quality, including public awareness campaigns, restrictions to the marketing of ultra-processed foods in the school environment, a ban on the use of artificial trans fats in foods and FOP nutrition labelling[29]. In August 2018, the government of Uruguay approved the implementation of nutritional warnings on packaged foods with excessive content of sugar, total fat, saturated fat, and sodium, and granted the food industry 18 months to adapt to the new regulation[30]. After several changes to the regulation, the entry into force of nutritional warnings occurred on February 1st, 2021[16].

METHODS

An online cross-sectional study was conducted in April 2019, during the period granted to the food industry to include nutritional warnings on food packages. Four types of retail food establishments were explored: bakeries, delicatessens, fast-food retail and online food ordering. These establishments aimed to capture a diversity of settings selling unpackaged foods or foods made and packaged at the point of purchase in the presence of consumers. The decision of including online food ordering grounded on the accelerated growth in the availability and use of these platforms in the country in the last years. It is worth noting that sit-down restaurants were not considered in the present study because the alternatives for the inclusion of warnings are mainly limited to the menu. Indeed, so far, the inclusion of nutrition labelling on unpackaged foods has mainly focused on menu calorie labelling.

The study protocol was approved by the Ethics committee of the School of Chemistry of Universidad de la República, Uruguay.

Participants. A convenience sample of participants was recruited using social media. This methodological decision was made based on the fact that most Uruguayan citizens of all socio-economic groups had internet access and the widespread penetration of social media among the Uruguayan population. In 2019, 80% of Uruguayan citizens older than 14 years old accessed the internet on a daily basis[31]. Facebook was the most popular social media in the country, being accessed daily by approximately 50% of Uruguayan adults between 20 and 64 years old[31]. Meanwhile, Instagram was mainly popular among adolescents (14-19 years old) and young adults (20-34 years)[31].

To increase the external validity, participants were recruited using an advertisement on Facebook and Instagram targeted at adults (>18 years) living in Uruguay, selected by the Facebook software. The advertisement included the text "Help us think how we can have more information in establishments that sell prepared foods", accompanied by a picture of a bakery shelf. To encourage the participation of people not largely involved with food, participants were given the chance to enter a raffle for a voucher worth 70 US dollars.

The advertisement was delivered to 31,400 social media users, randomly selected by the Facebook software. A total of 2,300 people clicked on the link, 703 accepted to be part of the study and 547 completed the whole study. As shown in table 1, the sample was diverse in terms of age, gender and socio-demographic characteristics. However, the sample cannot not be regarded as representative of the Uruguayan population as it underrepresented young people, males and people with low education[32,33].

Questionnaire. Participants clicked on the study advertisement and were re-directed to the website where the online questionnaire was hosted (Compusense Cloud, Compusense Inc., Canada).

Table 1. Socio-demographic characteristics of participants (n= 547).

	Percentage of participants (%)
Gender	
Female	68
Male	32
Age	
18 - 30 years	9
31 - 45 years	36
46 - 60 years	34
> 60 years	21
Educational level	
Primary education	18
Secondary education	40
Technical education	12
University degree	21
Postgraduate studies	9
Socio-economic status	
Low	17
Medium	61
High	22

(*) Socio-economic level was estimated using the criteria provided by Centro de Investigaciones Económicas[32].

They provided informed consent through an online form at the beginning of the study. Then, participants were introduced with the following text: 'In August 2018, Uruguay approved a law that states that packaged processed food products containing excessive amount of sugar, fat and sodium should feature warnings (as those shown in the figure below) on the front of their packages', accompanied with an image showing the warnings design (black octagons with white borders, including the word "Excess", followed by the name of the nutrient and the initials of the Ministry of Public Health). Participants were asked to indicate to what extent they agree this information to be displayed at each of the following retail food establishments selling unpackaged foods: bakeries, delicatessens, fast-food restaurants and online food ordering. A 5-point Likert agree-disagree scale (1= completely disagree, 5= completely agree) was used for this purpose. The wording of the question was: "What is your degree of agreement with the inclusion of this information in the following establishments selling foods and prepared meals? (In Spanish: *¿Cuán de acuerdo estás con que esta información también aparezca en los siguientes puntos de venta de alimentos y comidas preparada?*). After that, participants were requested to provide ideas on how this information could be included in each of the 4 retail food establishments mentioned above by answering the following open-ended question: "How would you include the nutritional information we showed you before in the foods sold at (name of the establishment)?" (In Spanish: *¿Cómo incluirías la información nutricional que te mostramos antes en los alimentos que se comercializan en (nombre del establecimiento)?*). No word limit was implemented. The order in which the different retail food establishments were presented to participants was randomized, following a Williams' Latin square experimental design to avoid order effects. Finally, participants indicated their age, gender and educational level and answered a series of questions to estimate socio-economic status according to a standard Uruguayan methodology[32]. Participants took between 4 and 26 minutes to answer all questions. The study was conducted in Spanish and translated to English for publication purposes.

Data analysis. Responses to the Likert scales were analyzed using descriptive statistics. The percentage of participants providing responses indicating agreement (i.e., scores higher than 3 in the 5-point Likert scale) was calculated. For each establishment, a binary variable was created indicating if each participant agreed with the inclusion of warnings (i.e., provided a score higher than 3; no: 0 and yes: 1). A generalized linear model (glm) was used to evaluate the influence of gender (male/female), age group (18-30/31-45/46-60/older than 60 y), educational level (primary education/secondary education/technical education/ university degree/postgraduate studies) and socio-economic status (low/medium/high) on the likelihood of agreeing with the inclusion of warnings in each of the 4 types of establishments. A significance level of 5% was considered in the analysis and when the effects were significant, post-doc differences were calculated using Tukey's test.

Responses to the open-ended questions asking how nutritional warnings could be implemented in each of the establishments were analyzed through content analysis based on inductive coding[34]. Two researchers were involved in the coding process. For each retail establishment, researchers coded each of the responses into categories, as they emerged from the text. Categories corresponded to participant insights on how to implement the warnings in each type of establishment. After they had individually coded the data, a meeting was held to define the final categories by consensus. In order to identify the most relevant suggestions for the inclusion of nutritional warnings in retail food establishments, the percentage of participants who mentioned responses within each of the identified categories was calculated. Categories were grouped into dimensions following the same procedure described above. While data analysis was performed in Spanish, categories, dimensions and exemplar responses within each category were translated into English for publication purposes.

RESULTS

Agreement with the inclusion of nutritional warnings in the 4 types of retail food establishments. Results from the Likert scales showed that the inclusion of nutritional warnings in retail food establishments selling unpackaged foods was positively perceived by participants. Regardless of establishment type (bakery, delicatessen, fast-food retail or online food ordering), the majority of the participants (93-94%) provided scores that indicated agreement with the inclusion of warnings. For the 4 types of retail establishments, results from the glm model showed that agreement with the inclusion of nutritional warnings was not significantly influenced by age, gender, educational level or socio-economic status (all p-values higher than 0.074).

Insights on how to implement nutritional warnings on retail food establishments. Responses to the open-ended questions provided consumer insights on how warnings can be implemented in different types of retail food establishments. As shown in tables 2 and 3, the majority of the responses were coded within dimensions that implied that warnings should be visible before making a purchase decision (e.g. in a visible in-store placement, next to products). Responses proposing the inclusion of warnings in places that would only be visible after having bought the products were less frequent for the 4 types of establishments, as evidenced by the frequency of responses within dimensions such as Take-home information or Food delivery.

For bakeries and delicatessens, the majority of participants indicated that warnings should be included next to products, on the retail display case where products are exhibited (Table 2). Visible in-store placements such as menu boards were the second most frequent response for these establishments.

Regarding fast food restaurants, participants identified menu boards as the best place to include nutritional warnings (Table 2). Moreover, the inclusion of nutritional warnings on the wrapping paper or take-out packaging was mentioned by 19% of participants.

In the case of online food ordering, participants highlighted that warnings should be visible while exploring available options. As shown in table 3, most participants suggested that warnings could be included next to the product description, name or picture.

Table 2. Dimensions and categories identified in the content analysis performed on participants' responses to the open-ended question about how to implement nutritional warnings in different establishments selling unpackaged foods (n= 547). For each category, examples of responses and frequency of mention are shown.

Dimension	**Category**	**Examples of individual responses**	**Frequency of mention (%)**		
			Bakery	**Delicatessen**	**Fast food restaurant**
Visible in-store placement			36.0	40.0	63.8
	Menu board	'Product name with the respective warnings on the menu board' 'On boards, next to product picture' 'On boards displaying available food options and their prices ' 'On screens displaying the menu. If there is enough room to show the price, thus there is room for an additional label'	21.0	24.1	41.3
	Visible to customers	'In a visible placement within the establishment' 'Should be obviously visible to customers' 'Accessible to people who come to buy the food'	8.8	5.5	6.9
	Poster	'A poster inside the store' 'In posters and brochures, rather than on food packaging, so that people do not only assess this information when they are about to consume the product (after they have bought it)'	1.1	4.6	5.5
	Chalkboard	'On a chalkboard'	1.6	1.8	-
	Store entrance	'At the entrance door' 'A list of meals with their respective contents at the establishment entrance'	2.0	0.9	2.2
	Cash register	'By the cash register' 'Where food is ordered'	0.4	0.5	4.2
Next to the products			51.9	41.7	4.2
	On the retail display case	'Where products are exhibited so I can decide while buying' 'Stickers on the products' 'In signs on, or close to, displayed food products' 'Next to signs indicating product name and price'	37.8	32.2	3.8

...continuation table 2.

Dimension	Category	Examples of individual responses	Frequency of mention (%)		
			Bakery	Delicatessen	Fast food restaurant
	Pre-packaged foods	'If the product is already packaged, on the package' 'A sticker on the package'	11.9	8.6	-
	Food sorted based on nutrient content	'Sort foods according to the categories of their contents' 'Sort products with excess [nutrients] together in the retail display case'	2.2	0.9	0.4
Take-home information			18.5	19.9	26.7
	Packaging	'On the wrapping' 'Unlike the printed ticket used by supermarkets in which weight and price are indicated' 'Using a sticker attached to the takeout packaging' 'In the packaging either cardboard, paper or plastic'	11.7	12.1	18.8
	Brochures and flyers	'In brochures that are delivered to customers when they purchase at the store' 'Flyers' 'Menus brochures' 'Deliver a take-out brochure with all nutritional information to each customer buying food at the establishment '	3.3	6.2	4.2
	Payment receipt	'Payment receipt'	3.5	1.6	3.7
Additional alternatives			2.7	5.7	8.8
	App	'App'	0.4	0.5	0.4
	Advertisement	'If the establishment has any method to promote the daily set menu or other kind of promotions it should also be included there'	-	0.7	3.3
	Serving ware	'On the trays', 'Glasses and trays'	-	-	2.6
	Others		2.3	4.5	2.5

Notes: Percentages do not sum up to 100 % because each participant could give responses related to more than one category. Responses that did not provide specific ideas on how to implement nutritional warnings (15.7%-17.4%), as well as those that did not apply to the food establishment being taken into consideration (1.3%-2.6%) are not shown in the table.

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Table 3. Dimensions and categories identified in the content analysis performed on participants' responses to the open-ended question about how to implement nutritional warnings in online food ordering (n= 574). For each category, examples of responses and frequency of mention are shown.

Theme	Category	Examples of individual response	Frequency of mention (%)
Visible while exploring available options			61.8
	Food description	'With the food description' 'At the end, where food ingredients are provided'	14.3
	Food name and price	'In each product next to price' 'Next to the product' 'Just below the food name but above price'	13.5
	Menu	'The corresponding warning next to each food option' 'On the menu so that people base their decision on information'	12.6
	Next to food picture	'Before order confirmation, in the illustrative image' 'Next to the product image'	9.5
	Advertisement	'Include it in the ad'	4.9
	When entering the web site/app	'On the home screen'	2.4
	Visible on the screen	'Visible to everyone. Neither at bottom nor in a small size'	2.2
	Link to information consumer can voluntarily access	'When clicking on the product people could access the information'	1.8
	Food sorted based on nutrient content	'Filter that allows to direct the search towards foods that are free of (fat, sodium,etc)'	0.5
Food delivery			7.3
	Food packaging	'In delivery bags and boxes'	6.4
	Online order receipt	'Payment receipt'	0.9
Selected products			6.2
	Product selection	'At the moment users select the food'	2.2
	Order confirmation	'Detailed at the end of the ordering process' 'Before paying'	4.0
Additional alternatives			3.1
	Promotions	'In promotions'	0.2
	Others		2.9

Percentages do not sum up to 100 % because each participant could give responses related to more than one category. Responses that did not provide specific ideas on how to implement nutritional warnings (23.2%) as well as those that did not apply to the retail food establishment being taken into consideration (8.4%) were excluded from the table.

DISCUSSION

Nutritional warnings are gaining popularity in Latin America as a policy option to discourage consumption of foods with an excessive content of nutrients associated with NCDs[15,16,17,18]. Although warnings have been restricted to pre-packaged foods, their extension to unpackaged foods or foods made and packaged at the point of purchase deserves consideration by policymakers. Participants from the present study showed a high level of support for the inclusion of nutritional warnings in 4 types of retail food establishments: bakeries, delicatessen, fast food restaurants and food ordering websites. This result is in line with the high acceptance of nutritional warnings as front-of-package nutrition labelling scheme in pre-packaged foods[35,36], as well as with results from previous European studies showing that nutrition labelling is one of the policies with the highest public acceptance[37,38].

Gender, age, educational level and socio-economic status did not introduce significant variations in participant agreement with the implementation of nutritional warnings in retail food establishments. This suggests that support of this policy seems not to depend on socio-demographic characteristics. Similar results have been reported for public support for the implementation of warning labels on pre-packaged foods[35,36].

The present work also gathered consumer insights on how to implement nutritional warnings in different types of retail food establishments. Participant responses highlighted that warnings should be highly visible at the point of purchase, so that they become a relevant cue for making purchase decisions. In particular, the retail display case was identified as a key location for the inclusion of warnings in bakeries and delicatessens, whereas menu boards were the most frequently mentioned location for fast food restaurants. In a similar vein, when considering online food ordering, most participants posited alternatives that make sure warnings are visible and front of mind for consumers when deciding what to eat. It is worth highlighting that beyond the inherent differences between physical and online food retail establishments, results provide further insights on the relevance consumers attach to having access to nutritional warnings at the time of ordering, so they can take this information into account for deciding. Capturing consumer attention has been extensively recognized as a key determinant of nutrition labelling efficacy[38]. In the short time consumers invest making their purchase decisions[25], nutritional warnings need to easily capture their attention so that they can incorporate the information they provide in their decision-making process. Nutritional warnings have the potential to make the high content of sugar, fat and sodium of foods salient in the mind of consumers, discouraging them from selecting these products[39]. Based on the reported advantages of nutritional warnings over other front-of-package nutrition labelling schemes[19], it can be hypothesized that they could be more efficient at encouraging healthier food choices than calorie labelling.

Although consumers were positive about the inclusion of warnings, policy makers need to be aware of the many operational challenges that the food service industry would face for their implementation, including difficulties for accessing accurate nutrition information and the loss of flexibility for menu changes[40]. Moreover, the complexity of implementing such a policy may vary depending on the type of retail food establishment. In this sense, the standardization of recipes, a laborious but needed step to provide accurate nutritional information, may be even more complex when considering products involving numerous ingredients (e.g. menu options in fast food restaurants) or when 'variable' menu items (e.g. different pizza toppings) are offered[40]. Policy makers should develop consistent implementation strategies and provide support to relevant actors to overcome these obstacles[41].

Although exploratory in nature, the present work provides valuable insights on how to implement the extension of nutritional warnings to unpackaged foods or foods made and packaged at the point of purchase. Further research on the topic is needed to assess the impact of implementing nutritional warning (taking input from the present work) on consumer ordering decisions under different settings.

Limitations of the study. The main limitation of the present work is that participants cannot be regarded as representative of the Uruguayan population as they were recruited using social media. However, it should be noted that the use of social media is widespread in the country and that a diverse sample of participants in terms of gender, age, educational level and socio-economic status was considered. Secondly, participants received no direct compensation for their participation, suggesting that the sample may overrepresent citizens with a high involvement with food and nutrition. Finally, although the study suggested a high level of support for the implementation of nutritional warnings in retail food environments, it is worth highlighting that responses to the Likert questions may be affected by social desirability bias.

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