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*The Current State of Consumers' Use of Nutritional  
Knowledge on Processed Meat Products in Brazil*

*Prof. Fernando Leitão Furtado*



## The Current State of Consumers' Use of Nutritional Knowledge on Processed Meat Products in Brazil

Prof. Fernando Leitão Furtado<sup>1\*</sup>

<sup>1</sup>Santa Catarina State University

\*Corresponding Author's Email: [furtadofernando07@gmail.com](mailto:furtadofernando07@gmail.com)

### Article History

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### **Abstract**

**Purpose:** The purpose of this study was to determine the status of utilization of nutrition information in purchasing decisions of processed meat products in Brazil.

**Methodology:** The study used a desktop literature review methodology (desk study). This required a thorough analysis of research on the status of utilization of nutrition information in purchasing decisions of processed meat products. The subject of the study underwent three phases of sorting in order to assess its suitability for further study.

**Findings:** The study concluded that there is no significant relationship between utilization of nutrition information on processed meat products and the purchasing

patterns of processed meat products among consumers in supermarkets in Brazil.

**Unique Contribution to Theory, Practice and Policy:** According to the report, Manufacturers should educate consumers on the importance of reading nutrition information on the labels and using the information to make healthful purchasing decisions.

**Keywords:** *Nutrition Information, Purchasing Decision, Processed Meat, Consumer, Purchase Decision, Preservatives.*

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## INTRODUCTION

Both the shelf life and the flavor of processed meats are improved with processing (WHO, 2015). Smoking, curing, or adding salt or preservatives are the basic processing processes for processed meat. Bacon, sausages, hot dogs, smokies, brawn, corned beef, bits, ham, burgers, and meat balls are all examples of processed meats (Campos *et al.*, 2021). The labels on packaged foods often include nutrition facts. Consumers can find out on the food's calorie and carbohydrate counts, among other things, from this (Grunert & Wills, 2017). Canadian customers were found to be influenced by nutrition labels, as reported by Derby and Levy (2021).

Studies conducted in the USA indicated that consumers' usage of nutrition label information on pre-packaged foods improved the quality of consumers' diets (Nayga, 2019). Worsley's (2022) research found that the majority of processed meats sold in the UK are unhealthy due to their abundance of fat, sugar, and salt. Obesity and other diet-related problems including cancer and cardiovascular disease can come from eating too much of these things (World Health Organization [WHO] & Food and Agriculture Organization [FAO], 2015).

Reading the nutrition labels on processed meat reduced calorie intake from total fat by 6%, saturated fat by 2%, cholesterol by 67.6 mg, and sodium by 29.6 mg, according to the United States Department of Agriculture Continuing Survey ([DACS] 2015), which evaluated the impact of utilizing nutrition information on the labels on consumers. According to research conducted by Hawkes (2015) in France, many customers in industrialized countries valued the inclusion of nutrition information on the labels of processed meat products. People who take the time to read labels typically do so in order to shop for the best deal or to learn more about the nutritional makeup of the foods they eat (WHO, 2015). People who pay attention to nutrition labels tend to eat healthier overall (Hawkes, 2015). The ability of nutrition labels to influence national eating trends depends on consumers being both motivated and educated to make healthful decisions (Hawkes, 2015).

According to Cowburn and Stockley (2015) in the UK and Campos *et al.* (2021) in the US, the nutrition information on the label has become an important policy instrument for encouraging healthy eating in developed countries. According to the Food and Drug Administration's (FDA) jurisdiction under the Nutrition Labeling and Education Act of 1990 (NLEA), all food labels in the United States must include certain nutrition facts (Campos *et al.*, 2021). Europe, the Middle East, Asia, and Africa are all included in the NLEA's regulatory scope (Campos *et al.*, 2021). The Nutrition Labeling and Education Act (NLEA) regulations sought to improve the nutritional labeling system so that it better served the interests of consumers (Burton *et al.*, 2017). Nutrition facts are required to be listed on food labels in several countries, including those in the European Union, the Middle East, Asia, and the United States. This is in response to consumers' demands for transparency on a product's ingredients and health benefits (Campos *et al.*, 2021; European Food Information Council [EUFIC], 2015). Burundi, Kenya, Nigeria, and Rwanda are just a few of the Sub-Saharan African countries where nutrition labels are optional and the government only offers recommendations (European Food Information Council [EUFIC], 2015). The European Union Food Information Council (EUFIC) establishes the criteria for listing nutrients; however manufacturers are not required to include nutrition facts on the label unless the food makes a health or nutrition claim or is intended for special dietary usage (EUFIC, 2015). The general consensus



among citizens of nations where nutrition labels are either required or optional is that uniformity is better to diversity. Nonetheless, there is still a lot of debate over the best way to persuade consumers to make a certain decision (EUFIC, 2015).

### **Statement of the Problem**

When it comes to morbidity and mortality, nutrition-related NCDs were traditionally thought to be an issue just for the wealthy. However, this is no longer the case, especially in low-income nations and populations (WHO, 2015). Heart disease, diabetes, and the metabolic disorders (high blood pressure, high blood sugar, high cholesterol, overweight, and obesity) that contribute to these non-communicable illnesses are all too common (Popkin, 2006). The same risk factors for developing cancer also increase your risk for developing other non-communicable diseases, according to a 2017 report from the World Cancer Research Fund and the American Institute for Cancer Research. Consumption of processed meat is linked to an increased risk of cardiovascular disease and cancer by an estimated 30 percent (Micha *et al.* 2022; WHO, 2015). This is due to the fact that processed meats are an extremely concentrated source of several unhealthy elements, including sodium, cholesterol, and fats. Not only are they unhealthy in large quantities, but they also include a number of chemicals (sodium chloride, nitrites, monosodium glutamate, cholesterol, and lipids) that have been linked to a variety of health problems (World Cancer Research Fund [WCRF], 2017). The United Kingdom's National Cancer Research Institute has connected eating red or processed meat to an increased risk of developing cancer (Pearson & Tauber, 2022). While processed meat consumption has been linked to an increased risk of cancer, data on this topic in Brazil is scant. Because of the chemical preservative sodium nitrite, eating processed meats raises your risk of cancer by 67%. (Pearson and Tauber, 2022). While cancer is the fourth leading cause of death in Brazil, accurate data on its prevalence and incidence are missing. According to the World Health Organization, in 2012 the rate of diabetes in Brazil was 3.3%, with a projected increase to 4.5% by 2025. In Brazil, 4.2% of adults are obese, despite the fact that being overweight is a major risk factor for numerous chronic diseases such as diabetes, cardiovascular disease, and cancer. But consumers can safeguard themselves against the risks of processed meats by always reading nutrition labels, avoiding the purchase of any meat product containing sodium nitrite or monosodium glutamate, and basing their diet on whole fresh foods rather than processed meat (WCRF, 2017).

### **Objectives of the Study**

The general objective of this study was to determine the status of utilization of nutrition information on labels of processed meat products and its influence on purchasing decisions among consumers in Brazil.

### **Significance of the Study**

The results of this study may be useful in demonstrating the significance of using nutrition information on labels of processed meat products among consumers to relevant stakeholders, such as the Ministry of Health at national levels. The findings will also help the health ministry pinpoint problems with customers' ability to read nutrition labels on processed meat products and spot holes in the current nutrition labeling system. These results may also be useful to academics interested in how consumers use nutrition data to inform their shopping decisions.

## LITERATURE REVIEW

### Processed Meat Products and Nutrition Information Labeling

Consuming processed meats on a regular basis is associated with an increased risk of health problems due to the high levels of cholesterol, salt, and fats found in these foods (Washi, 2022). In addition, the long-term and frequent use of processed meat products is detrimental to health due to the presence of different chemical components (sodium chloride, nitrites, monosodium glutamate, cholesterol, and lipids) (World Cancer Research Fund [WCRF], 2017). However, shoppers don't know how to make the most of the nutrition facts labels on processed beef products (Darkwa, 2015; Kim *et al.*, 2021; Washi, 2022; Young & Nestle, 2022).

Consumers can learn more about the nutritional value of processed meat by perusing the label. Although research about the impact of nutrition information on diet and public health is inadequate in France, nutrition labeling on processed meat products can be an effective approach of helping customers make healthy food choices (Hawkes, 2015). Washi (2022) conducted research in the United Arab Emirates and found that rising rates of diet-related diseases were associated with increased consumption of processed foods and deficient use of nutrition labels (Washi, 2022). In the United States, Teisl *et al.* (2021) found that consumers' use of nutrition information and, by extension, their purchasing decision could be significantly impacted by nutrition labeling of processed meat products, with respect to the nutritional characteristics of the products, and an information campaign to educate consumers.

### Nutrition Information on Processed Meat Products

According to Grunert and Wills (2017) of Oxfordshire, a fundamental variation between countries' methods to nutrition labeling is the selection of which nutrients are provided on the label and how they are presented. Numerical or non-numerical formats are acceptable for providing nutritional information. Quantitative nutrition information is presented in numeric formats, while qualitative information is presented in non-numerical formats, such as text or visuals like logos, symbols, and color coding (Cowburn & Stockley, 2015; Maubach, 2020). The Nutrition Facts Panel (NFP) or Nutrition Information Panel (NIP) lists the calories and other nutrients in a food in three different measurements: 1) per serving, 2) per 100 grams (or 100 milliliters) of food, and 3) as a percentage of the recommended daily value, with the latter two measures typically based on the assumption that a person needs 2,000 calories per day (Maubach, 2020).

The European Union Food Information for Consumers (2015) (EUFIC (2015)) stipulates that European manufacturers of processed meat products must prominently display the following information on the product packaging or on a label attached to the packaging: the name of the food, the Quantitative Ingredients Declaration (QUID), a list of ingredients (including allergens), a list of preservatives used, the weight or volume of the food (net quantity), a "best before" or "use by" date, the name and address of the Concern has been raised over the presentation of nutrition data in some EU member states. There have been complaints about how complicated and time-consuming it is for customers to make use of nutrition facts as they are now presented (Levy *et al.*, 2015). Levy *et al.* (2015) provide a good example of this from the United Kingdom, where 80% of food containers include nutrition labels due to a claim or the manufacturer's decision.

## Empirical Review

Ayaz *et al.* (2021), examined how nutrition education contributed to consumers' use and attitude towards food labels. This study aims to determine the effects of nutrition knowledge on the use of nutrition facts labels in emerging adults by defining the nutrition education status. For this cross-sectional study, 919 young adults, aged 18–24 years, were recruited. Participants trained by dietetic professional at least 2 h per week during the period of at least one education period were considered as having nutrition education. Food label use, specific circumstances and different food products were recorded. The participants were also asked about their attitudes regarding food label use with a questionnaire including 15 products. Nutrition facts label is mainly used when buying a product for the first time, a product of an unknown brand or comparing different companies' similar products, regardless of nutrition education status. Participants with nutrition education had a higher nutrition facts label use and they use the score for specific food products including breakfast cereal ( $p = 0.003$ ), snacks ( $p < 0.001$ ), beverages ( $p = 0.004$ ), ready to eat soups ( $p = 0.004$ ) and diet products for special occasions ( $p < 0.001$ ). Mean total score of attitudes regarding food label use for participants who had nutrition education was found as  $58.9 \pm 6.1$  and who did not have nutrition education was found as  $51.7 \pm 9.2$  ( $p < 0.01$ ). Nutrition education, which is related to the nutrition facts label use, would be especially useful in helping people for the selection of healthier foods. As habits acquired from childhood will last for a lifetime, more effective nutrition education programs and nutrition label reading education programs should be designed. The findings need to be considered for promoting nutrition facts label use by developing nutrition education.

Shan *et al.* (2017), examined consumer evaluations of processed meat products reformulated to be healthier. Recent innovations in processed meats focus on healthier reformulations through reducing negative constituents and/or adding health beneficial ingredients. This study explored the influence of base meat product (ham, sausages, beef burger), salt and/or fat content (reduced or not), healthy ingredients (omega 3, vitamin E, none), and price (average or higher than average) on consumers' purchase intention and quality judgement of processed meats. A survey ( $n = 481$ ) using conjoint methodology and cluster analysis was conducted. Price and base meat product were most important for consumers' purchase intention, followed by healthy ingredient and salt and/or fat content. In reformulation, consumers had a preference for ham and sausages over beef burgers, and for reduced salt and/or fat over non-reduction. In relation to healthy ingredients, omega 3 was preferred over none, and vitamin E was least preferred. Healthier reformulations improved the perceived healthiness of processed meats. Cluster analyses identified three consumer segments with different product preferences.

Hung *et al.* (2016), investigated consumer attitude and purchase intention towards processed meat products with natural compounds and a reduced level of nitrite. The rationale for such innovation relates to nitrite's negative health image as a chemical additive among consumers, versus the perception of compounds from fruits and vegetables as being natural and healthy. Cross-sectional data were collected through online questionnaires on knowledge about, interest in, attitude and intentions towards such new type of processed meat products in Belgium, The Netherlands, Italy and Germany ( $n = 2057$ ). Consumers generally had limited knowledge about nitrite being added to meat products. Yet, they expressed favourable attitudes and purchase intentions towards the new processed meat products. Purchase intention associated positively with: attitude; preference

for natural over chemical additives; perceived harmfulness of chemical additives; risk importance; domain specific innovativeness; awareness of nitrite added; education; general health interest; and processed meat consumption frequency. Consumers from Italy and Germany had a lower level of purchase intention compared to Belgium. Four consumer segments were identified based on attitude and purchase intention: 'enthusiasts' (39.3% of the sample), 'accepters' (11.9%), 'half-hearted' (42.3%) and 'uninterested' (6.6%). This study provides valuable insight for further product development and effective tailoring of marketing communication strategies of innovative processed meat products.

Bandara *et al.* (2016), investigated the impact of food labeling information on consumer purchasing decision. Consumer's attitudes towards the nutritional aspect of the foods are increasing rapidly. In this context, labels of food products play a significant role in providing the relevant nutrition information to consumers. This study was conducted with a view of identifying important nutritional labeling aspects that consumers would examine at the time of purchasing. Ultimate objective was to draw conclusions that provide important information for the food processors about consumer behavior in related to food nutritional aspects and the purchasing intention. Pre-tested structured questionnaire was employed to collect data from random sample of 90 respondents. Rank Based Quotient test and descriptive analytical tools were used to analyze the data. This study shows that majority of the respondents tend to examine the labels when making the purchasing decision due to evaluate the suitability of the food product for vegetarians, religious reasons, to avoid diseases related to food and to check whether the food is organically grown or not. Complicated life styles, their brand loyalty and complicated nature of food labels were the major reasons for not examine food labels. The promising opinions of respondents on existence of food labels were to know the expiry date, to know the nutritional composition and as a legal requirement. Majority of the consumers importantly concern on nutrient status. Monosodium Glutamate content strongly influence the purchasing decision of considerable fraction of the respondents. Name of the food was rated the most important mandatory labeling information. Food safety, environmental protection, origin of the food and brand reputation were the most concerning factors when observing food labels in the process of purchasing food products. According to the Suggestions produced by the respondents, making information easier to understand, standardizing the presentation information, creating colorful and attractive labels were highlighted as the major suggestions. Eventually findings of this study suggest food producers should draw and implement the strategies by considering above key results in order to improve the status of food labeling as well as nutritional status of the consumers.

## **METHODOLOGY**

The study adopted a desktop methodology. Desk research refers to secondary data or that which can be collected without fieldwork. Desk research is basically involved in collecting data from existing resources hence it is often considered a low-cost technique as compared to field research, as the main cost is involved in the executive's time, telephone charges and directories. Thus, the study relied on already published studies, reports and statistics. This secondary data was easily accessed through online journals and libraries.

## **FINDINGS**

The results were grouped into various research gap categories namely as conceptual, contextual and geographical.

Global patterns of meat consumption reveal trends towards increased meat consumption in both developed and developing countries noted on the subject under study in order to determine the viability of the subject for research. This is the first stage that comprised the initial identification of all articles that were based on status of utilization of nutrition information in purchasing decisions of processed meat products and its influence on purchasing decisions among consumers in Brazil. The search was done generally by searching the articles in the article title, abstract, keywords. A second search involved fully available publications on the subject status of utilization of nutrition information in purchasing decisions of processed meat products and its influence on purchasing decisions among consumers in Brazil. The third step involved the selection of fully accessible publications. Reduction of the literature to only fully accessible publications yielded specificity and allowed the researcher to focus on the articles that related to status of utilization of nutrition information in purchasing decisions of processed meat products and its influence on purchasing decisions among consumers in Brazil which was split into top key words. After an in-depth search into the top key words (nutrition information, purchasing decision, processed meat, consumer, purchase decision, preservatives), the researcher arrived at 4 articles that were suitable for analysis.

## **CONCLUSION AND RECOMMENDATIONS**

### **Conclusion**

It has been demonstrated that the majority of consumers actually examine the nutrition labels on processed meat products before making a purchase. Technical jargon and small text size were cited as examples of difficulties encountered by users. Most customers cited price as a more significant element than nutrition facts when making a purchase choice. Consumers' time availability may also play a role in whether or not they use the nutrition information provided on the label of processed meat products before making a purchase. Consumers claimed they lacked the time to carefully examine the food's nutritional information label. Brand, mentality towards nutrition, taste, and current health state were also important considerations.

### **Recommendations**

Based on the findings of this study, the Brazilian Ministry of Health should implement mandatory nutrition labeling for all processed foods and tighten rules and policies regarding nutrition information for processed meat products. If customers have easier access to nutrition health information, they will be better able to select nutritious foods. A better exploitation of nutrition information on the label of processed beef products is also suggested as a result of this study. Manufacturers have a responsibility to remind customers of the value of nutrition labels in helping them make more informed, healthier purchases.

Manufacturers of processed meats should collaborate with nutritionists and communication experts to ensure that nutrition information is clear and accessible to consumers of all educational



backgrounds. This can be accomplished through measures such as using plain language, increasing the size of print, and clearly illustrating how serving sizes were determined.

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