



Labelling Evaluation of the Pre-Packaged Food Samples According to Libyan Specification in Benghazi/Libya

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ABSTRACT

Food labels found to be very important public health tools that assist people who are on special diet or with nutrition related health problems and diseases. The current study aims to evaluate the label of the most consumed pre-packaged foods according to Libyan specifications. A descriptive cross sectional study was conducted at supermarkets and malls in Benghazi city. The pre-packaged food samples were grouped into five categories namely; cereals and cereal products, milk and dairy products, meat and fish products, fruit and vegetables products and fat and oil products. One hundred pre-packaged food products (50 local and 50 imported) were collected. The present study revealed that 95% of locally made food products and 89% of imported ones were shown high compliance with Libyan food labelling requirements. Findings from this study will facilitate future public education efforts to promote the use of food labels. Imported food products showed a higher level of compliance with Libyan nutritional labelling requirements by (54.7%) compared with local food products that only (46%). It is clear that most pre-packaged foods samples have an inadequate nutrition label.

Key Words: Benghazi, Food, Labels, Libyan specification.

Introduction

Traditional food packaging is meant for protection, communication, convenience and containment. There are two different types of packaging technologies; active and intelligent packaging which offer to deliver safer and quality products. Active packaging refers to the incorporation of additives into the package with the aim of maintaining or extending the product quality and shelf life. These technologies are designed to the increasing demand for safer foods with better shelf life (Biji, K., et al, 2015). Food labelling had gone through several stages of historical development. Labelling regulations began with regulatory marks, which served as logistical aids to the enforcement of adulteration laws and the levying of duties and taxes on bread. (Samson, G., 2012, Aryee, P., and others 2019, Dudhate, A. U 2011, and Kasapila, W., & Shawa, P 2011). With minor exceptions, most food was produced locally and consumed locally, so that there was no widespread usage of food labels, and hence no need for extensive regulation of such labels. The industrialization of food production in the nineteenth century made consumers more reliant on food labels as a key source of information in making purchases (Moore, M., 2001). In such cases, countries should consider the need to provide for appropriate labelling and its presentation relative to existing regulations. Different approaches and legal requirements have been established. These create difficulties in developing and harmonizing labels, which have broad international applications. For these reasons, the Codex Guidelines on food labelling play an important role to provide guidance to member countries when they want to develop or update their national regulations and to encourage harmonization of national with international standards (Khalid, S., 2015). Codex has been developed by an international commission established in 1962 when the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) recognized the need for international standards to guide the world's growing food industry and to protect the health of consumers (FAO/WHO, 2016). The function and purpose of Codex "is to guide and promote the elaboration and establishment of definitions and requirements for food, to assist in their harmonization and, in doing so, facilitate international trade" (Thow, A., et al., 2019). Since 1962, the Codex Alimentarius Commission (CAC) has been responsible for implementing the Joint FAO/WHO Food Standards Programme. The objectives of the Programme are to protect the health of consumers, to ensure fair practices in the food trade and to co-ordinate all food standards work (Randell, A., & Whitehead, A., 1997), labelling has been a fundamental aspect of the work. In fact, the first Codex food standard was a labelling standard (Albert, J., 2014). The information required to be present on a food label according to food labelling standards include the name or description of the food, ingredient list, quantitative ingredients declaration also called percentage labelling, information on food additives, potential allergens, net contents and drained weight, name and address of the manufacturer, the country of origin, lot identification or food recall information also called code dating, date markings such as the manufacture date, expiration or best before date, storage instructions, directions for use and nutrition information (FAO/WHO, 2001). Food labelling is mandatory in most countries, however the implementation of nutrition labelling varies from country to country (Buyuktuncer, Z., et al., 2018). Food labelling is subject to regulations, these regulations prevent false advertising and assist in promoting food safety (Robert, S., &

Chandran, A., 2017). In the US, food labelling is regulated by the Food and Drug Administration (FDA) and the United States Department of Agriculture (USDA). The Food, Drug and Cosmetic Act gives FDA its authority to regulate food labelling. In Canada, the regulatory authority for food labelling is shared by the Canadian Food Inspection Agency (CFIA) and Health Canada (Wingfield, K., 2016). Food labelling legislation in the European Union (EU) began with Council Directive 79/112/EEC relating to the labelling, presentation and advertising of foodstuffs. It has been made more detailed, more informative and more complicated by Council Directive 2000/13/EC and its amendment 2003/89/EC (Przyrembel, H., 2004). Nutrition labelling of food was introduced in different parts of the world with the increasing number of packaged foodstuffs. Initially, nutrition labelling was not given very much consideration. This is indicated by the facts that legislation on nutrition labelling has evolved later than the one that applies to general labelling, and that the provision of nutrition facts has been optional in many countries. Provision nutrition information is still an optional matter according to European Union regulations (Nordic Council of Ministries, 2002). The Nutrition Labelling and Education Act in 1990 USA mandates that pre-packaged foods carry a nutrition label, with exceptions for foods intended for immediate consumption. In Canada, mandatory nutrition labelling was first implemented on pre-packaged foods in December 2005 and became mandatory on virtually all pre-packaged foods in 2007 (Camposm, S., et al., 2011). Nutrition labelling in Europe became mandatory for pre-packed food since 13th December 2011, when the Regulation (EU) No1169/2011 came into effect (Viola, G., et al., 2016). In Libya, the standard specification for food labels on food packaging has been prepared by the National Center for Standardization and Metrology in 2002. This specification was adopted by the Supreme Committee of the Center in 2003. According to the revised food labelling regulations the following mandatory information that should be displayed on the labels of all pre-packaged food products in Libya, includes the name of the food product, list of ingredients, net contents of the container, name and address of the manufacturer, importer or distributor, as well as country of origin, expiry date/shelf life indicated as the "best before" or "use by" date, instruction for storage, additives, and instruction for use and preparation) Libyan standard specification, No. 53, 2003). Benghazi is the second largest city in Libya and estimated to have a total population of 500,000 according to the national census in 2012 (Nouh F et al 2021). In Libya especially in Benghazi city, the information available in regard to food label was very meagre. The aim of this paper to evaluate the label of the most consumed pre-packaged foods according to Libyan specifications.

Methodology

The-pre-packaged food samples were grouped into five categories namely; cereals and cereal products, milk and dairy products, meat and fish products, fruit and vegetables products and fat and oil products. One hundred pre-packaged food products (50 local and 50 imported) were collected. Food items were collected randomly from three major supermarkets and assessed thoroughly. This sample reflected foods commonly consumed by Libyans. The required labelling information was in accordance with Libyan specification No. 53 for food labelling of pre-packaged products, issued by the Libyan National Center of Standardization and Metrology, 2003. It was included, name of product, list of ingredients, net content of product, name and address of the manufacturer, country of origin, expiration date, storage instruction. With respect to the form and presentation of label, it had to be clear, prominent and readily legible and lettering was to be made in a contrasting color to the label background. The name of product had to be on the normal presentation side of the packaged product. The use of the term Halal on foods products with animal origin, and the presence of nutritional information per 100 g (or per 100mL for fluids), it was to be stated as such. Following the approval by the management of the supermarkets, visits were paid to each shop. On each visit, all pre-packaged food products arranged on the shelves were identified, and then the information on the label was thoroughly observed and compared with the basic requirements on the Libyan specification checklist. „Yes“ was ticked for requirements which were present on the label and „No“ for requirements which were absent on the food label. Data entry and analysis were performed using the Statistical Package for Social Sciences (SPSS) version 20. Ethical approval for conducting this study was obtained from the Directorate of Graduate Studies and Training of University of Benghazi. Permission to conduct the study in supermarkets and malls was obtained from the managers of each supermarket and mall. Informed consent was obtained from the participants.

Result

Table (1) shows that all pre-packaged food samples (100%) were complied with Libyan specification in expiration date, lettering in contrasting color to background and name of product on label. Generally, over 80% of pre-packaged products either locally made or imported complied with authority requirements such as list of ingredients, net content, country of origin, Halal, clear and prominent label, label readily legible and label language. While only 74% of locally made products and 66% of imported products were complied with Libyan specification in storage condition requirements.

Table (1): Compliance percentage of pre-packaged food samples to food labelling requirements according to Libyan specification No. 53-2003

Food labelling requirements	Locally Products		Imported products	
	No.	%	No.	%
Name of product	50	100	50	100
List of ingredients	44	88	42	84
Net contents	46	92	48	96
Name and address of manufacturer	48	96	34	68
Country of origin	47	94	43	86
Expiry date	50	100	50	100
Storage condition	37	74	33	66
Halal	49	98	48	96

Label clear and prominent	50	100	49	98
Label readily legible	48	96	44	88
Familiar language	50	100	45	90
Lettering in contrasting colour	50	100	50	100
Total	94.84%		89%	

Table (2) shows compliance percentage of the various food categories to nutrition labelling requirements, 70% of pre-packaged food samples were complied with nutrition labelling requirements of “calories/energy” for both locally made and imported products. While compliance percentage of „protein“, „fat“ and „fiber“ of locally made products labelling were only 60%, 56% and 22%, respectively compared to imported products 70%, 68% and 52%, respectively. With respect to completeness of carbohydrates information to nutrition labelling requirements only (68%) of the locally products met requirements, and (66%) of imported products. The moisture has lowest compliance (0%) and (2%) were recorded for locally-made and imported products respectively.

Table (2): Compliance percentage of pre-packaged food samples to nutrition labeling requirements

Food labelling requirements	Locally Products		Imported products	
	No.	%	No.	%
Calories/energy	35	70	35	70
Fat	28	56	34	68
Carbohydrates	34	68	34	66
Protein	30	60	35	70
Fiber	11	22	26	52
Moisture	0	0	1	2
Total	138	46%	131	54.7%

Discussion

Table (1) represented that the highest percent of completeness with Libyan food label requirements (100% of samples) was found on expiration date (or its equivalents; „best before“ and „use by“), lettering in contrasting color to background and name of pre-packaged product. The labelling requirement with the least compliance in this study was „storage conditions“ (74% for locally products, 66% for imported products), which could be explained by the fact that not every product requires a storage instruction before usage. Generally, the locally made food products showed a higher compliance (95%) for the various Libyan food labelling requirements than the imported ones (89%). According to study conducted in Ghana, which aimed to assessing the food labels of some selected locally made and imported pre-packaged foods in selected supermarkets in the Accra Metropolis, to see the extent to which they meet Ghana's standards for food labelling. The results of this study were agreed with the results of the present study. They found that all products (100%) had a name on their label (Steele- Dadzie, R., et al., 2015). The similarity of this study with the result of present study may be due to the fact that manufacturers were interested in marketing their products. As indicated in table (2), the highest compliance with Libyan's nutrition labelling requirements (70%) was recorded in “calories/energy” for both locally made and imported products. In general, imported food products showed a higher level of compliance with Libyan nutritional labelling requirements by (54.7%) compared with local food products that only (46%). It is clear that most pre-packaged foods samples have an inadequate nutrition label. Similar study was carried out in Hyderabad, India, which aimed to quantify the adherence of the declared nutrients on Indian packaged foods with national and global requirements. They found that adherence to nutrition labelling requirements was high for „energy“ ranging from 73% (Indian food products) to 86% (imported food products) (Dunford, E., et al., 2015). According to a survey was conducted on the Riyadh market in Saudi Arabia, which to assess the compliance of nutritional labelling and to analyze the stated nutritional components as presented on pre-packaged food products. The study reported that compliance of pre-packaged foods with Saudi Food and Drug Authority (SFDA) requirements was (38%) in imported products and (24.5%) in locally made food items (AlMughthem, A., et al., 2020). In a survey comprised the assessment of 1399 labels collected from pre-packaged foods available for retail sale in Australia and New Zealand. The results were similar to results of present study, which found that the local products more compliance with standard requirements than imported products (Food Standards Australia New Zealand, 2008). On another hand, the reverse was indicated by another survey which found that imported products more compliance with standard requirements than non-imported products (FSANZ, 2006). Another study conducted in Ghana, disagreed with our findings. They found that the imported food products showed a higher compliance for the various labelling requirements than the locally made ones (Steele-Dadzie, R., et al., 2015).

Conclusion

Individuals who purchase pre-packaged food products in Benghazi city were male, young or middle ages and most of them were married. Employers with high education level and middle-income were the predominate categories. 95% of locally made food products and 89% of imported ones were shown high compliance with Libyan food labelling requirements.

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Competing Interests

Authors have declared that no competing interests exist.

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