



## **Pre-packaged food labelling in Lagos State: Evidence to Guide Regulations Enforcement**

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### **ABSTRACT**

This study assesses the compliance of prepackaged food labelling in Lagos State with the NAFDAC Prepackaged Food Labelling Regulations 2022 to guide the enforcement of the regulation to protect consumers of prepackaged food in Lagos State. A total of 100 prepackaged food products (n=100) were purchased from retail shops and supermarkets in Lagos State and assessed for their compliance with NAFDAC's Prepackaged Food Labelling Regulations of 2022. Compliance of the products assessed with the labelling requirements of the Prepackaged Food Labelling Regulations 2022 was generally high. The list of ingredients and product name were most complied with when compared with other labeling requirements. While the “allergic caution” statement, “label legibility,” and directions for use” were least complied with. It is recommended that the National Agency for Food and Drug Administration and Control (NAFDAC) prioritize and strengthen post-marketing surveillance to ensure compliance of prepackaged food labelling with the Prepackaged Food Labelling Regulations 2022.

**Keywords:** Regulations; Prepackaged; Food; Label; Compliance

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### **INTRODUCTION**

Pre-packaged foods are processed foods packaged for sale. The consumption of processed foods has been linked to the development of non-communicable diseases (NCDs). Among adults, it has been linked to type-2 diabetes, overweight, obesity and cardio-metabolic risks cancer, and cardiovascular diseases (Nardocci et al., 2020). These foods often have elevated levels of energy, fat, sugar, and salt, all of which are recognized as contributing factors to non-communicable diseases (NCDs). Food labels play a crucial role in assisting consumers in making well-informed decisions regarding their food choices, particularly when it comes to promoting a healthy lifestyle (Asalu et al., 2022). Prepackaged foods are known vectors of unhealthy diets and often contain high levels of trans-fat, saturated fat, added sugar and salt, which are risk factors for NCDs.

Prepackaged foods with high sodium content pose a significant threat to cardiovascular health (Ojo et al., 2022). In many low- and middle-income countries, where undernutrition is also a problem, overweight and obesity have emerged as serious public health issues. This scenario is known as the double burden of malnutrition (DBM) (Popkin, 2003; Popkin et al., 2020).

Between 1990 and 2015, high body mass index-related mortality in Nigeria increased by 79 percent for men and 29% for women (The GBD 2015 Obesity Collaborators, 2017). In fact, according to recent studies, communicable diseases are no longer the main causes of morbidity and mortality in Nigeria, with NCDs linked to overweight and obesity taking their place (Chukwuonye et al., 2013).

In Nigeria, there is a legal framework for regulating the labelling of prepackaged food products. Prepackaged food products and their labelling are regulated by the National Agency for Food and Drug Administration and Control (NAFDAC). Currently, prepackaged foods are regulated through the enforcement of the Prepackaged Foods (Labelling) Regulations 2022.

Nutrition labelling regulations have been in place in many countries since 1973, when the United States Food and Drug Administration (USFDA) published its first regulations. However, the Prepackaged Food Labelling Regulation was first published in Nigeria in 1995 (Ogunmoyela et al., 2021), shortly after the National Agency for Food and Drug Administration and Control (NAFDAC) was established. NAFDAC was established pursuant to the enactment of Decree No. 15 of 1993 (amended by Decree No. 19 of 1999).

Considering the high consumption of highly processed foods in Nigeria (Mekonnen et al., 2022), it is crucial to examine how these products are being labelled for consumers in accordance with specific labelling regulations and scientifically established standards. This is essential to ensuring that these products do not pose any risks to public health.

The aim of this study is to evaluate the labelling of prepackaged food products in Lagos State and its level of compliance with the NAFDAC Prepackaged Food Labelling Regulations, 2022.

## MATERIALS AND METHODS

The present study used a cross-sectional study design to collect data on the labelling information of prepackaged foods that were available for sale in the three senatorial districts of Lagos during the months of April and August in the year 2023. A quantitative approach was adopted to establish the compliance of the label of these products with the NAFDAC Prepackaged Foods Labeling Regulation, 2022.

The sampled products were food products that fall under the prepackaged foods category. These are food products that have been pre-packaged, produced either locally or imported, and made available for purchase by the public.

A total of 100 products were randomly selected for the analysis of product labelling compliance with the NAFDAC Prepackaged Foods Labeling Regulations 2022. The samples used in this study were purchased from retail outlets, stores, supermarkets, and markets located in the three senatorial zones of Lagos. The products sampled varied in pack sizes and were procured from diverse retail outlets as deemed appropriate.

The NAFDAC checklist for the vetting of prepackaged food labels was used for the analysis.

## RESULTS AND DISCUSSION

A total of 100 prepackaged food products commercially available for sale in the three senatorial zones of Lagos State, Nigeria, were evaluated.

The compliance of the products with the NAFDAC Pre-packaged Food (Labelling) Regulation 2022, is shown in Table 1.

**Table 1:** Compliance of selected prepackaged food products with the general labelling requirements of the NAFDAC Prepackaged Food Labeling Regulations, 2022. (n=100)

<b>General labeling requirement</b>	<b>Compliance (frequency)</b>	<b>Compliance (percentage)</b>	<b>Non-Compliance (frequency)</b>	<b>Non-Compliance (percentage)</b>
Product name	100	100.0	0	0.0
List of ingredients	100	100.0	0	0.0
Name and address of manufacturer	96	96.0	4	4.0
Direction for use	50	50.0	50	50.0
Batch number	93	93.0	7	7.0
Production date	81	81.0	19	19.0
Best before date	93	93.0	7	7.0
Storage condition	88	88.0	12	12.0
NAFDAC Registration No.	95	95.0	5	5.0
Barcode	97	97.0	3	3.0
Nutritional declaration	83	83.0	17	17.0
Allergen caution	15	15.0	85	85.0
Net contents	93	93.0	7	7.0
Label written in English	99	99.0	1	1.0
Treated with ionization radiation	0	0.0	0	0.0
Product name on Principal Display Panel	99	99.0	1	1.0
Clear and legible label	48	48.0	52	52.0

<sup>1</sup> **Table:** Compliance of selected prepackaged food products with the general labelling requirements of the NAFDAC Prepackaged Food Labeling Regulations, 2022. (n=100)

Each of the products evaluated in this study has an ingredient list and a product name displayed on its label in full compliance (100%) with Regulation 5 and Regulation 3 of the NAFDAC Prepackaged Food Labelling Regulation, 2022.

All the products analyzed have their names written on the label's principal display panel, as required by Regulation 2a of the NAFDAC Prepackaged Food Labelling Regulation 2022. Although 52% of the product labels are not legible.

Over 95% of the products analyzed had a barcode, NAFDAC Reg. No., and the name and address of the manufacturer on the product label. More than 80% of the products had batch numbers, production dates, best-before dates, and nutritional declarations on the product label (Table 2). Although 52% of the products' labels were not adequately legible, and only 50% had directions for use. 99% of the products analyzed had their labels written in English (Table 3), and their brand names were prominently displayed on the principal display panel of the label in compliance with Regulation 14 and Regulation 2(a) of the regulation.

None of the products analyzed declared "treated with ionizing radiation" on their product labels. This may indicate that they have not been treated with ionizing radiation as required by Regulation 15(1).

Only 15% of the products analyzed had allergen cautions. Allergen cautions were not mandatory for all prepackaged food products.

Table 2 shows the compliance of products with mandatory labeling information requirements. This is information that must be mandatory on all prepackaged food labels. These labeling information requirements guide consumers in making the best choice of prepackaged food.

The study's findings showed full compliance (100%) with respect to the product name on the label. This observation is in alignment with prior research, such as the study conducted by the National Institutes of Nutrition in India in 2009, where all surveyed products demonstrated full compliance with respect to "name of the product". Similarly, this study yielded congruent results with the findings of Steele-Dadzie et al., 2015.

This high level of compliance may be attributed to manufacturers' keen interest in promoting their products effectively. The inclusion of a product name on the label facilitates easy identification and selection of the product in the marketplace, aligning with the findings of Obeesi in 2010.

Food labeling is an integral component of packaging, which, in turn, serves as a powerful driver for product marketing and advertisement.

In this study, the requirement with the lowest level of compliance was "label legibility" (48%), and "directions for use" (50%). Product label legibility is a crucial component of food labeling, as it directly impacts the ability of consumers to assess and comprehend essential product information. Clear and understandable food labels are essential for aiding consumers in making informed dietary choices. Research emphasizes that legibility plays a pivotal role in ensuring that labeled information can effectively influence consumers.

**Table 2:** Compliance of selected prepackaged food products with the mandatory labelling information requirements of the NAFDAC Prepackaged Food Labeling Regulations, 2022. (n=100)

<b>Mandatory labeling requirement</b>	<b>Compliance (frequency)</b>	<b>Compliance (percentage)</b>	<b>Non-Compliance (frequency)</b>	<b>Non-Compliance (percentage)</b>
Product name	100	100.0	0	0.0
List of ingredients	100	100.0	0	0.0
Name and address of manufacturer	96	96.0	4	4.0
Direction for use	50	50.0	50	50.0
Batch number	93	93.0	7	7.0
Production date	81	81.0	19	19.0
Best before date	93	93.0	7	7.0
Storage condition	88	88.0	12	12.0
NAFDAC Registration No.	95	95.0	5	5.0
Barcode	97	97.0	3	3.0
Nutritional declaration	83	83.0	17	17.0
Allergen caution	15	15.0	85	85.0
Net contents	93	93.0	7	7.0

<sup>2</sup>**Table:** Compliance of selected prepackaged food products with the mandatory labelling information requirements of the NAFDAC Prepackaged Food Labeling Regulations, 2022. (n=100)**Table 3:** Compliance of selected prepackaged foods products with forms and presentation of label requirements of the NAFDAC Prepackaged Food Labeling Regulations, 2022. (n=100)

<b>Label forms and presentation</b>	<b>Compliance (frequency)</b>	<b>Compliance (percentage)</b>	<b>Non-Compliance (frequency)</b>	<b>Non-Compliance (percentage)</b>
Legible label	48	48.0	52	52.0
English language	99	99.0	1	1.0
Product name on Principal Display Panel	100	100.0	0	0.0
Treated with ionization radiation	100	100.0	0	0.0
Legible label	48	48.0	52	52.0

<sup>3</sup>**Table 3:** Compliance of selected prepackaged foods products with forms and presentation of label requirements of the NAFDAC Prepackaged Food Labeling Regulations, 2022. (n=100)

Table 3 showed the compliance of food products with the forms and presentation of the label requirements of the NAFDAC Prepackaged Food Labelling Regulations, 2022.

Legibility means “the physical appearance of information, where the information is visually accessible to the general population and which is determined by various elements, inter alia font size, letter spacing, spacing between lines, stroke width, type color, typeface, width: height ratio of the letters, the surface of the material and significant contrast between the print and the background” (Official Journal of the European Union (25 October 2011), Regulation (EU) No 1169/2011, 2013).

The low compliance of the “direction for use” labelling requirements with Regulation 17 of the Prepackaged Food Labeling Regulations 2022 may be attributed to the fact that not all products necessitate detailed usage instructions. Correspondingly, results from assessments of labels collected in Australia and New Zealand in 2006 indicated a notably lower proportion of labels with “Directions for Use” (12%). In contrast, a study conducted by the National Institute of Nutrition (NIN) in 2009 reported a higher compliance rate of 77% for "Directions for Use." It is important to note that “Directions for Use” are typically mandatory in situations where it is not self-evident how a product should be prepared or used, as outlined in the Codex Alimentarius guidelines from 2000. The compliance rate for “Directions for Use” in this study, standing at 50%, is marginally higher than the findings of a similar investigation conducted in Ghana by Steele-Dadzie et al. in 2015 with respect to “Direction for Use” (33.2%).

For example, certain products such as confectioneries, certain fruit juices, alcoholic beverages, and carbonated drinks can be consumed without the need for specific usage instructions. This may largely account for the observed low compliance rate in this study.

Product label legibility is a legal requirement in Nigeria, as stipulated in the regulation 9 of the Prepackaged Food Labelling Regulations 2022. Prepackaged food labels must be clear, readable, and understandable to help consumers make informed food and dietary choices. Research has shown that legibility is an important element in promoting the possibility for labelled information to influence its consumers and that illegible product information is one of the major causes of consumer dissatisfaction with prepackaged food labels (**Peterman & Žontar, 2014**).

A study conducted on 55 prepackaged food labels by the Chinese Consumers Council shows that more than 85% of the labels analyzed were illegible (**Chinese Consumers Council report, 2022**). These findings suggest that product label illegibility is a growing concern globally and the enforcement of the regulation must be prioritized.

More than 80% of the products analyzed have date markings (production and best before date). Regulation 10 (1) of the NAFDAC Prepackaged Food Labeling Regulations, 2022 requires that the day, month, and year of manufacture of prepackaged food be specified on the product label. According to Regulation 10 (2), “where a food is to be consumed before a certain date, to ensure its safety and quality, the “use-by date” or “expire date” shall be declared.

Labeling information, such as “Best Before” is sometimes misconstrued an indicator of microbial safety rather than freshness, whereas “Use-by” might be seen as related to product quality, depending on the additional information provided. This overall absence of unified oversight by a single regulatory agency, coupled with manufacturers' discretion in using date labels, has the potential to create inconsistencies in terminology and result in consumer confusion regarding both product safety and quality (**Weis et al., 2021**).

Like China, Nigeria faces a notable lack of comprehensive information concerning the nutritional composition of prepackaged foods. A key contributing factor to this information gap may be

attributed to the limited prevalence of nutritional labels on pre-packaged food products, as identified by a study conducted by **Huang et al., (2014)**.

In response to international standards and guidelines, such as those set forth by the CODEX Alimentarius in 1985, recommending the mandatory declaration of specific nutritional components, including energy, protein, total fat, saturated fat, carbohydrate, total sugar, and sodium, the NAFDAC Prepackaged Food Labeling Regulation of 2022 in Regulation 18 has taken a step forward by requiring the inclusion of declarations for energy, protein, total fat, carbohydrate, and sodium on prepackaged food labels in Nigeria. Nutritional declaration on pre-packaged food labeling impact consumers' choice of pre-packaged food (**Ababio et al., 2012**).

## CONCLUSION

Prepackaged food labeling in Lagos State complies with the NAFDAC Prepackaged Food Labelling Regulations 2022 to a high extent. In all the products assessed, presentation of the product name on the principal display panel, list of ingredients, and product name were most complied with when compared to other labelling requirements. While “allergic caution” statement, “label legibility,” and directions for use” were least complied with.

To protect public health, it is recommended that the National Agency for Food and Drug Administration and Control prioritize and strengthen post-marketing surveillance to ensure compliance of prepackaged food in the market with the Prepackaged Food Labelling Regulations 2022. NAFDAC should ensure strict enforcement of the labelling regulations and prosecute offenders as a deterrent to product manufacturers who habitually violate the provisions of the NAFDAC Prepackaged Food Labelling Regulations.

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