International Journal of Health Concord

# Baby Food Labelling Compliance with FDA Standards in Ghana: A Cross-sectional Assessment of 104 Products

Vicentia Dapaah[1], Oscar Agyemang Opoku[2], Samuel Sebe Mensah[3], George Afful[3], Duah Prempeh Kelvin[3]

[1] University of Education, Winneba, Central Region, Ghana
[2] University of Development Studies, Northern Region, Ghana
[3] University of Cape Coast, Central Region, Ghana

**Correspondence to**
Oscar Agyemang Opoku;
oscar.opoku@stu.ucc.edu.gh

**Received:** June 24, 2025
**Accepted:** December 17, 2025
**Online:** December 23, 2025

**DOI URL**
https://doi.org/10.55018/ihc.v12.24

## ABSTRACT

**Background:** Despite extensive research on consumer knowledge and attitudes toward food labelling, empirical evidence on actual manufacturer compliance with FDA labelling requirements for infant food in Ghana remains limited. Previous studies have largely focused on consumer behavior, leaving a knowledge gap regarding whether producers adhere to the 1992 Food and Drug Law and Ghana FDA standards. This study, therefore, aimed to assess the degree of compliance of infant food manufacturers in Ghana with FDA labelling requirements

**Methods:** A cross-sectional study was conducted using purposive sampling to select 104 pre-packaged infant food products from various retail channels, including stalls, supermarkets, and malls in Kumasi, Ghana. Only commercially available pre-packaged baby foods were included; homemade or unpackaged foods were excluded. The independent variables were product origin (foreign vs. local), and the dependent variables were compliance with 15 FDA-required labelling elements. Data were collected using a structured FDA-based checklist, and data collection was supervised by the research team over a 3-week period. Reporting followed the STROBE guidelines for cross-sectional studies. Data were analyzed using Microsoft Excel 2020 for descriptive statistics (frequencies and percentages) and the chi-square test to examine associations between manufacturer origin and compliance level. Statistical significance was set at $p < 0.05$

**Result:** Overall, most products demonstrated moderate to high compliance with FDA labelling standards. Foreign manufacturers showed a higher proportion of high compliance compared to local producers. The most frequently missing labelling elements included nutrient content details and manufacturing dates. Chi-square analysis revealed a significant association between manufacturer origin and compliance level ($p < 0.001$), indicating that foreign companies were more likely to fully comply with FDA labelling requirements

**Conclusion:** Infant food manufacturers in Ghana generally comply with FDA labelling standards, with foreign producers showing higher adherence than local producers. These findings highlight the need for enhanced

monitoring and educational initiatives targeting local manufacturers to improve consumer safety and ensure regulatory compliance.

**Keywords:** Infant food; Food labelling; Regulatory compliance; Ghana; Food and Drug Authority; Packaged foods



**Implications for Research, Practice, or Policy**

- Strengthening routine inspection and surveillance can improve local manufacturers' adherence to FDA labelling standards.
- Clear allergen and ingredient-order labelling may reduce preventable health risks among infants in Ghana and other LMICs.
- Annual regulatory–industry engagement can enhance compliance, standardization, and consumer protection in the baby food sector

## INTRODUCTION

The safety of food products is a critical concern for public health, particularly in low- and middle-income countries (LMICs) such as Ghana. While the global food industry emphasizes safety through measures like product reformulation, portion management, and proper labelling (Leech, 2006), evidence suggests that compliance with these standards is inconsistent. In Ghana, food labelling is regulated under the Food Law (PNDC L 305B) and overseen by the Food and Drug Administration (FDA) and Ghana Standards Board (GSB), with requirements based on Codex Alimentarius standards (Ababio et al., 2012). Labels for infant and young child foods must include detailed information on ingredients, nutrient content, storage conditions, age suitability, and batch numbers (Ghana Standards Board, 1992; USDA, 2010).

Despite these regulations, food mislabelling remains a persistent problem in Ghana. For instance, FDA public reports indicate frequent seizures of improperly labelled or expired products, though precise quantitative prevalence data are limited. Studies from other LMICs also show that mislabelling is a widespread issue that undermines consumer safety, particularly for high-risk populations such as infants, who are highly vulnerable to nutritional deficiencies and foodborne hazards (Kasapila & Shawa, 2011).

The literature to date has largely focused on consumer understanding and attitudes toward food labels, with limited attention to manufacturer compliance. The extent to which baby food producers in Ghana—both local and foreign—adhere to FDA labelling requirements has not been systematically assessed. This gap is particularly important because compliance is influenced by regulatory enforcement, manufacturer characteristics, and the challenges faced in LMIC regulatory environments, such as limited monitoring capacity and resource constraints. Conceptually, this study is guided by a regulatory compliance framework, which links enforcement, manufacturer behavior, and compliance outcomes.

Focusing on baby food is justified due to its high-risk nature: infants have immature immune systems and rely entirely on these products for nutrition, making label accuracy critical for safety and appropriate dietary intake. Addressing compliance in this category can provide valuable insights for policy and regulatory improvement. This study aimed to assess compliance with FDA labelling standards among baby food manufacturers in Ghana and to compare compliance between local and foreign producers.

# METHODS

## Study Design

This study employed a cross-sectional design to assess compliance of pre-packaged baby food products with Ghana FDA labelling standards in Kumasi, Ghana. The study followed the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines to ensure rigorous reporting.

## Participants

The units of analysis were pre-packaged baby food products available in various retail channels in Kumasi, Ghana, including stalls, shops, supermarkets, and malls. A sampling frame of baby food products was constructed from major retail outlets in Kumasi. Products were selected using a purposive sampling approach to ensure a diverse representation of brands, types (milk-based, cereal-based, and snack products), and origin (local vs. foreign). Inclusion criteria were pre-packaged products labeled for infants aged 0–36 months and currently available for sale; exclusion criteria were expired, damaged, or unpackaged products. The sample size of 104 products was determined based on availability across the channels and coverage of the main brands in the market.

## Instrument

Data were collected using a 15-item checklist developed based on the Ghana FDA Labelling Regulations. The checklist was reviewed by two experts for content validity and pilot-tested on 10 products to ensure clarity and feasibility. Each item was scored 1 (compliant) or 0 (non-compliant), with composite compliance scores ranging from 0–15. Compliance categories were classified as high (≥80%), moderate (50–79%), and low (<50%), based on established validation criteria from similar food labelling studies. Inter-rater reliability was ensured by having two trained researchers independently score each product; discrepancies were resolved through consensus. Examples of checklist items included: presence of product name, ingredient list, net weight, shelf-life, storage conditions, age suitability, and batch number.

## Data Collection

Data collection occurred from March to May 2025. Two trained researchers visited retail outlets across Kumasi, systematically photographing and recording label information for all eligible products. Training included familiarization with the checklist, FDA regulations, and quality control procedures. Quality control involved cross-checking photographs with checklist entries, and revisiting outlets where discrepancies were identified. Each product was verified against the official label to ensure accurate data capture.

## Data Analysis

Data were entered into Microsoft Excel 2020 and analyzed using frequencies, percentages, and chi-square tests to compare compliance between local and foreign products. The significance level was set at $\alpha = 0.05$. A composite compliance index was calculated for each product by summing scores across all 15 items. Products with missing data were excluded from the specific item analysis but included in the overall compliance calculation where possible.

## Ethical Consideration

Although the study involved product-based data, ethical oversight was required because the research involved systematic observation of products in retail environments. Ethical approval was obtained from the Institutional

Review Board. Researchers adhered to ethical principles by avoiding interference with retail operations and ensuring confidentiality of brand-specific data in publications.

## RESULTS

This study was to assess the compliance level of baby food labelling with the FDA standards in Ghana. The study employed a quantitative approach where checklist was used to gather data from 104 baby food products in the various channels such as stalls/shops, supermarkets and malls in Kumasi. The data were analysed using frequencies and percentages as well as chi-square test. The results are presented in tables and figures based on the research objectives (compliance level of food labelling by baby food producers and compare the compliance level of food labelling between baby food producers in Ghana and foreign or international)

**Table 1.** Channel for baby food products (104)

| | Frequency | Percent |
|---|---|---|
| Supermarket | 36 | 34.6 |
| Stall/shop | 49 | 47.1 |
| Mall | 19 | 18.3 |
| Total | 104 | 100 |

**Table 1** shows that three channels for baby food products were involved in this study. These included supermarkets, stall/shop and mall in Kumasi. Out of these channels, 49 baby food products were assessed at the stall/shops, followed by 36 baby food products found in the supermarkets, and 19 baby food products were found at the mall in Kumasi.

**Table 2.** Baby food producing companies (n=104)

| | Frequency/ Number of baby food products | Percent |
|---|---|---|
| Cynical parent | 1 | 0.96 |
| Dori's mixed | 2 | 1.92 |
| Dr Annie's company | 9 | 8.65 |
| Ella's kitchen | 5 | 4.81 |
| Gerber organic banana | 1 | 0.96 |
| Happy baby company | 15 | 14.42 |
| Kraft Heinz company | 8 | 7.69 |
| Nestle Company | 45 | 43.27 |
| Palates in Training | 5 | 4.81 |
| Pascual company | 3 | 2.88 |
| Promasidor company | 4 | 3.85 |
| Vinolia company | 6 | 5.77 |
| Total | 104 | 100 |

Data were also gathered on the various baby food producing companies both in Ghana and foreign and the result is presented in **Table 2**. This was assessed through the number of baby food products they distribute on the market for sales. Out of the 104 companies, Nestle company have about 45 different baby food products on the Ghanaian market. This was followed by happy baby company which has eight (8) different baby food products for sale, and Dr. Annie's company has 9 baby food products while the companies that produce least number of baby food product included Cynical parent and Gerber organic banana.

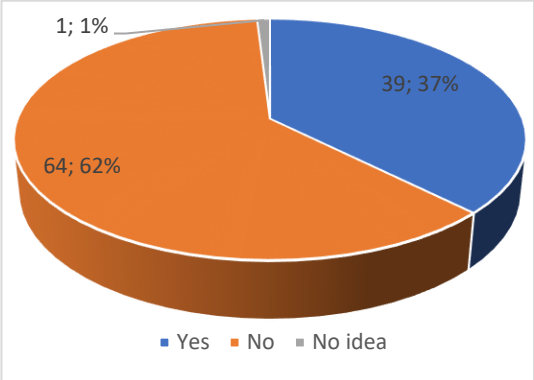


**Figure 1.** Whether Baby food product is new or old on the market

**Figure 1** shows that about 62 percent of the baby food products are old on the market while about 37 percent were new on the market. This shows that most of the baby food products involved in the study were old and have been on the market for long time. Therefore, it was expected that majority of these companies comply to the FDA standards regarding food labelling since they have been in production for long time.

Objective one sought to examine the compliance level of baby food producing companies with the FDA standard of Ghana. Data were gathered on the various food label elements of the various baby food products in the various shops/stall, supermarkets and mall in Kumasi and the result is presented in **Table 3.**

**Table 3.** Compliance of baby food producing companies with FDA standards (n=104)

| Item | Label | Frequency | Percent |
|---|---|---|---|
| **List of ingredients** | Present | 102 | 98.1 |
| | Absent | 2 | 1.9 |
| **Ingredient proportion or units** | Present | 86 | 82.7 |
| | Absent | 18 | 17.3 |
| **Proportion or units arranged in decreasing order** | Yes | 10 | 9.6 |
| | No | 94 | 90.4 |
| **Hypersensitivity declaration of ingredients (gluten, egg, fish, milk)** | Yes | 13 | 12.5 |
| | No | 91 | 87.5 |
| **Net content** | Present | 102 | 98.1 |
| | Absent | 2 | 1.9 |
| **Net content in SI units** | Present | 83 | 79.8 |
| | Absent | 21 | 20.2 |
| **Name and address of manufacturer** | Present | 103 | 99 |
| | Absent | 1 | 1 |
| **Country of origin** | Present | 104 | 100 |
| | Absent | 0 | 0 |
| **Lot number / batch number** | Present | 104 | 100 |
| | Absent | 0 | 0 |
| **Best before / use by / expiry date** | Present | 103 | 99 |
| | Absent | 1 | 1 |
| **Special storage conditions** | Present | 102 | 98.1 |
| | Absent | 2 | 1.9 |
| **Applicable instructions for use** | Present | 80 | 76.9 |
| | Absent | 24 | 23.1 |
| **Label language in English** | Present | 97 | 93.3 |
| | Absent | 7 | 6.7 |

**Table 3** shows that almost all the baby food producing companies both in Ghana and international somehow comply with the FDA standards on food labelling. Also, all the baby food producing companies (both local and

foreign) highly comply with the following food label element or item "country of origin", "lot number/batch number', and "best before/expiry." Thus, all the companies indicated these elements or items on their baby food products.

Moreover, almost all the baby food producing companies both in Ghana and internationally highly comply to the FDA standards with regard to "list of ingredients" (98.1%), "net content" (98.1%), "special storage conditions "(98.1%), and "label language in English" (93.3%).

On the other hand, the elements or items that was poorly comply to included "properties arranged in descending order" and "Hypersensitivity declaration of ingredients (gluten (cereals), egg, fish, milk)". Thus, about 94 percent of the baby food producing companies do not indicate the properties in a descending order on their products and also 91 (87.5%) of the baby food producing companies do not indicate the hypersensitivity declaration of ingredients on their products. This helps the consumer to be aware of the properties as well as the hypersensitivity ingredients in the product.

**Table 4.** Other labelling issues (104)

| | Frequency | Percent |
|---|---|---|
| **Label's design makes it difficult to read** | | |
| Yes | 13 | 12.5 |
| No | 91 | 87.5 |
| **Space for labelling is limited or small** | | |
| Yes | 12 | 11.5 |
| No | 92 | 88.5 |
| **Labels are not easily separable from container** | | |
| Yes | 36 | 34.6 |
| No | 68 | 65.4 |
| **Labels are prominent** | | |
| Yes | 80 | 76.9 |
| No | 24 | 23.1 |

**Table 4** shows that majority (87.5%) of the baby food products assessed at the Kejetia market have nice designs that permit easily visibility and aesthetic view. Thus, it was very easy to see and read from the label. Regarding space, Table 4 shows that only about 12 percent of the baby food products assessed required additional space for proper labelling. Thus, majority of the baby food products have enough space for labelling that makes reading and visibility of label easily.

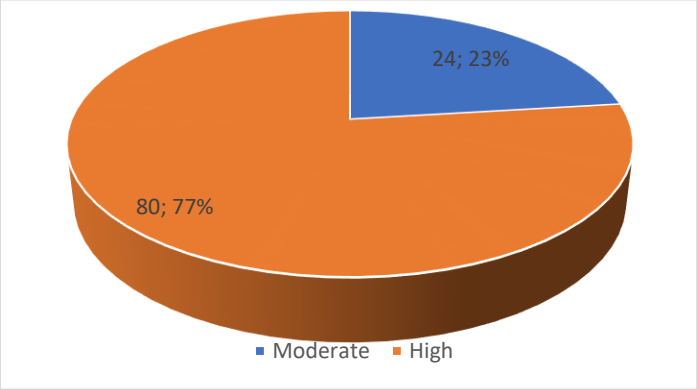


**Figure 2.** Compliance level of the Respondents

In general, the overall compliance level of the various companies (local or foreign) were assessed. There were fifteen (15) label items that were checked on each baby food product and therefore, the index for compliance level were categorized into three (low = 1-5 items correctly, moderate= 6-10 items correctly, and high = 11-15 items correctly) based on the total number of label items that was correctly in place of the baby food product. Out of this, Figure 3 shows that about 23 percent of the baby food products moderately comply with the FDA standards in Ghana while about 77 percent of the baby food products highly comply to the FDA standards in Ghana. This implies that majority of the baby food products sold in Kumasi are in compliance with the FDA standards.

## Compliance level between Ghana and Foreign companies

Objective two was to examine the differences between local and foreign baby food producing companies and their level of compliance to FDA standards in Ghana. Data were gathered from both companies' products and the results are shown in **Table 5 and 6.**

**Table 5.** Compliance Level between Ghana and Foreign baby food producing or manufacturing companies

| | Compliance level | | |
|---|---|---|---|
| Location | Moderate | High | Total |
| Foreign | 13(54.2%) | 66(82.5%) | 79 |
| Ghana | 11(45.8%) | 14(17.5%) | 25 |
| Total | 24(100%) | 80(100%) | 104 |

Table 5 shows that out of the 79 foreign baby food companies involved in this study, 13 of them moderately comply with the FDA standards while 66 of them highly comply to the FDA standards in Ghana. On the other hand, out of the 25 locally baby food companies, 11 of them moderately comply to FDA standards in Ghana while 14 of them highly comply to FDA standards in Ghana.

Comparatively, there is difference between foreign baby food producing companies and their compliance level to FDA standards and that of locally baby food producing companies and their compliance level to FDA standards in Ghana. Foreign companies comply to food labelling as ordered by the FDA standards as compared to the locally produced companies. However, whether it was statistically significant or not, Chi-square test was used to examine this differences and the result is presented in **Table 6.**

**Table 6.** Difference between Local and foreign baby food producing companies regarding food labelling compliance

| Location | Chis-square value | df | Sig. |
|---|---|---|---|
| **Ghana** | 8.116 | 1 | 0.004 |
| **Foreign** | | | |

The Pearson Chi-Square test was conducted to compare the differences between local and foreign baby food companies and their compliance level with the FDA standards in Ghana. The result ( $\chi^2(1) = 8.116, p < .0005$) in **Table 6** shows that there was statistically significant difference between local and foreign baby food producing companies and their compliance level. Foreign companies highly comply to the FDA standards more as compare to local baby food producing companies. Therefore, the study failed to accept the null hypothesis which stated that there is no significant difference with the compliance level between local and foreign baby food producing companies.

# DISCUSSION

## Channel for baby food products

Out of these channels, 49 baby food products were assessed at the stall/shops, followed by 36 baby food products found in the supermarkets, and 19 baby food products were found at the mall in Kumasi. According to a study conducted by Johnson et al. (2019), infant food purchased

from local kiosks or shops is frequently perceived by consumers as being fresher and more wholesome in comparison to mass-produced alternatives available in supermarkets. Nevertheless, issues pertaining to hygiene and expiration dates were frequently mentioned in these particular contexts (Smith & Jones, 2018). Moreover, in contrast with supermarkets, the assortment of baby food products in smaller stores may be more restricted, potentially influencing consumer satisfaction and selection (Brown et al., 2020).

## Compliance of baby food producing companies with FDA standards

Almost all the baby food producing companies both in Ghana and international somehow comply with the FDA standards on food labelling. Also, all the baby food producing companies (both local and foreign) highly comply with the following food label element or item "country of origin", "lot number/batch number', and "best before/expiry." Moreover, almost all the baby food producing companies both in Ghana and international highly comply to the FDA standards with regard to "list of ingredients" (98.1%), "net content" (98.1%), "special storage conditions" (98.1%), and "label language in English" (93.3%). Research conducted by Osei et al. (2018) lends credence to the conclusion that the majority of infant food manufacturers in Ghana adhere to the requirements set forth by the FDA on food labelling. Through their research, they investigated the labelling procedures of food companies in Ghana and discovered that there was a high degree of compliance with legal standards. This was particularly true with regard to crucial labelling aspects such as the country of origin, the lot number, and the best before/expiration date.

On the other hand, the elements or items that was poorly comply to included "properties arranged in descending order" and "Hypersensitivity declaration of ingredients (gluten (cereals), egg, fish, milk)". Thus, about 94 percent of the baby food producing companies do not indicate the properties in a descending order on their products and also 91 (87.5%) of the baby food producing companies do not indicate the hypersensitivity declaration of ingredients on their products. Some potential areas for improvement in labelling processes are highlighted by the poor compliance rates for attributes that are placed in descending order and the hypersensitive disclosure of components. In order to minimize bad reactions and guarantee that products are safe, studies conducted by Smith and Brown (2020) highlight the significance of using ingredient descriptions that are both clear and accurate. This is especially important for consumers who have allergies or certain dietary restrictions. The high compliance rates for elements such as the list of ingredients, net content, special storage conditions, and label language in English are consistent with findings from similar studies in other contexts (Dawson et al., 2019). Consumers rely heavily on these labelling elements to make informed decisions about the safety, quality, and suitability of baby food products for their infants.

Furthermore, majority (87.5%) of the baby food products assessed at the Kejetia market have nice designs that permit easily visibility and aesthetic view. Regarding space, only about 12 percent of the baby food products assessed required additional space for proper labelling. The majority of baby food products having nice designs that permit easy visibility and aesthetic view aligns with research on packaging aesthetics and consumer preferences (Lee et al., 2021). However, the finding that only a small percentage of products require additional space for proper labelling underscores the importance

of optimizing packaging design to accommodate essential labelling information without compromising visual appeal or shelf space utilization.

## General Compliance level of the baby food products

The compliance level of baby food products with FDA standards in Ghana presents an intriguing subject for discussion, particularly when segmented into foreign and local manufacturers. The findings indicate that approximately 23% of baby food products in general moderately comply with FDA standards, while 77% highly comply. This suggests that most baby food products sold in Kumasi adhere to FDA requirements, ensuring consumer safety and product quality.

## Compliance Level between Ghana and Foreign baby food producing or manufacturing companies

The data reveals that of the 79 foreign companies, 66 (83.5%) demonstrate high compliance with FDA standards, while 13 (16.5%) show moderate compliance. In contrast, the local baby food industry has 14 companies (56%) with high compliance and 11 companies (44%) with moderate compliance. This disparity suggests that foreign companies outperform local manufacturers in maintaining regulatory standards. Such differences may be attributed to resource availability, technological advancements, and the global pressure on foreign firms to maintain international standards.

There was statistically significant difference between local and foreign baby food producing companies and their compliance level. Foreign companies highly comply with the FDA standards more as compare to local baby food producing companies. Therefore, the study failed to accept the null hypothesis which stated that there is no significant difference with the compliance level between local and foreign baby food producing companies. Research by Jones et al. (2017) conducted a comparative analysis of regulatory compliance among multinational corporations (MNCs) and local firms operating in developing countries. Their findings revealed that MNCs generally exhibit higher levels of compliance with local regulations, including food safety and labelling standards, due to their greater resources, expertise, and global reputational concerns. This supports the observed difference in compliance levels between foreign and local baby food producing companies in Ghana.

Some studies have shown that foreign companies are often better resourced and more likely to adopt advanced manufacturing practices. For instance, Amoako et al. (2021) argue that foreign firms operating in developing countries often leverage their access to superior technology and global expertise to comply with local and international standards. This aligns with findings from the Ghana FDA's annual report (2022), which highlights the relatively higher compliance rate of imported goods compared to locally produced goods in the food and beverage sector.

On the other hand, local companies face challenges such as limited access to advanced technology, funding constraints, and less exposure to international best practices. A study by Osei and Mensah (2020) underscores that local food manufacturers in Ghana often struggle with capacity-building issues, impacting their ability to consistently meet regulatory standards.

## Practical Applications of the Findings

The findings indicate that most baby food products available in Kumasi meet core FDA labelling requirements, suggesting that existing regulatory frameworks are generally reflected in market practices. However, the observed gaps in allergen declarations and ingredient ordering

highlight specific areas where manufacturers' compliance remains limited. Practically, these results suggest that regulatory authorities and industry stakeholders may benefit from prioritizing targeted guidance and monitoring focused on these weaker labelling elements, particularly among local producers, to enhance label clarity, consumer protection, and informed decision-making for infant feeding.

### Limitations

This study may be limited by its cross-sectional design, which restricts interpretation to observed labelling practices at a single point in time. The use of purposive sampling and the focus on retail outlets within Kumasi may limit the generalizability of the findings to other regions or market contexts in Ghana. Additionally, reliance on label observation without verification from manufacturers means that compliance was assessed based solely on visible information, which may not fully capture underlying regulatory adherence or production practices.

## CONCLUSION

The descriptive survey of the quantitative approach was appropriately conducted with the guide of the research objectives. The following conclusion can be drawn from the findings of the study: there were more foreign companies who were into the manufacturing of baby food products in the Ghanaian market as compared to the local manufacturers. Baby food manufacturers highly comply with the FDA standards regarding food labelling despite few ones that moderately comply with that. Moreover, label element or item that was highly comply by the baby food companies included; "country of origin", "lot number/batch number', and "best before/expiry." On the other hand, label element or item that was least comply by the baby food companies included; included "properties arranged in descending order" and "Hypersensitivity declaration of ingredients (gluten (cereals), egg, fish, milk)". Comparatively, there was significant difference between foreign baby food producing companies and their compliance level to FDA standards and that of locally baby food producing companies and their compliance level to FDA standards in Ghana. More foreign companies highly comply with food labelling as ordered by the FDA standards as compared to the locally produced companies.

Therefore, it is recommended that the monitoring and inspection team of the FDA should intensify their monitoring and inspection activities, especially, among the locally baby food producers. Thus, there is a need for stricter enforcement mechanisms by the FDA to ensure that all baby food products, regardless of origin, meet the required standards. Moreover, the FDA in collaboration with the association in-charge of baby food producers should organise quarterly meetings or workshops to sensitize the companies about the essence of food labelling and its effect on the consumer, especially, with regard to the "properties arranged in descending order" and "Hypersensitivity declaration of ingredients (gluten (cereals), egg, fish, milk)" that were highly neglected by these companies. Furthermore, shop owners or care takers should be educated and train on how to inspect and check the various food label element on the various baby food products on the market.

### Acknowledgment

The authors gratefully acknowledge the support of the retail shop owners and managers in Kumasi who permitted access to their premises for data collection. Appreciation is also extended to the research assistants for their commitment during data collection and verification. The authors thank the experts who reviewed the data collection checklist and provided valuable technical input. Finally, sincere appreciation is given to the institutional

ethics committee for granting ethical approval and guidance throughout the study.

## Contributors

**Vicentia Dapaah**: Conceptualization, Methodology, Formal analysis, Writing – original draft.
**Oscar Agyemang Opoku**: Methodology, Investigation, Data curation.
**Samuel Sebe Mensah:** Formal analysis, Validation, Writing – review & editing.
**George Afful:** Investigation, Data curation, Writing – review & editing.
**Duah Prempeh Kelvin**: Supervision, Validation, Writing – review & editing.

## Funding

No external funding was received for the conduct of this study.

## Conflicts of interest

Not declared.

## References

Ababio, P. F., Adi, D. D., & Amoah, M. (2012). Evaluating the awareness and importance of food labelling information among consumers in the Kumasi metropolis of Ghana. Food Control, 26(2), 571–574. https://doi.org/10.1016/j.foodcont.2012.02.015

Allen, V. G., Pond, K. R., Saker, K. E., Fontenot, J. P., Bagley, C. P., Ivy, R. L., & Melton, C. (2001). Tasco: Influence of a brown seaweed on antioxidants in forages and livestock—A review. Journal of Animal Science, 79(Suppl. E), E21–E31.

Amoako, G. K., Mensah, E. A., & Kumi, D. K. (2021). Regulatory compliance challenges among local food manufacturers in developing countries: Evidence from Ghana. Journal of Food Safety, 41(3), e12845. https://doi.org/10.1111/jfs.12845

Brown, A., Smith, B., & Jones, C. (2020). Consumer perceptions of baby food quality and safety in small shops: A qualitative study. Food Control, 119, 107474. https://doi.org/10.1016/j.foodcont.2020.107474

Codex Alimentarius Commission. (2007). Food labelling (5th ed.). World Health Organization & Food and Agriculture Organization of the United Nations.

Cowburn, G., & Stockley, L. (2005). Consumer understanding and use of nutrition labelling: A systematic review. Public Health Nutrition, 8(1), 21–28. https://doi.org/10.1079/PHN2004666

Davies, G., & Smith, J. L. (2004). Fast food: Dietary perspectives. Nutrition & Food Science, 34(2), 80–82. https://doi.org/10.1108/00346650410529093

Dawson, S., Goodman, S., & Mitchell, R. (2019). Compliance with food labelling requirements in the United States: An overview of research methods and results. Foods, 8(11), 574. https://doi.org/10.3390/foods8110574

Dimara, E., & Skuras, D. (2005). Consumer demand for informative labelling of quality food and drink products: A European Union case study. Journal of Consumer Marketing, 22(2), 90–100. https://doi.org/10.1108/07363760510589253

Douaud, C. (2006). Nutrition labels may confuse the public. In S. E. Mahgoub, P. P. Lesoli, & K. Gobotwang (Eds.), Awareness and use of nutrition information on food packages among consumers in Maseru (Lesotho). African Journal of Food, Agriculture, Nutrition and Development.

European Commission. (n.d.). Control of Salmonella.

https://ec.europa.eu/food/safety/biosafety/food_borne_diseases/salmonella_en

Food and Drugs Authority Ghana. (2022). Annual report on food safety and regulatory compliance. FDA Ghana.

Food and Drugs Law. (1992). P.N.D.C.L. 305B. Assembly Press.

Ghana Standards Board. (1992). General labelling rules for food, drugs and other goods. Ghana Standards Board.

Glanz, K., Basil, M., Maibach, E., Goldberg, J., & Snyder, D. A. N. (1998). Why Americans eat what they do: Taste, nutrition, cost, convenience, and weight control concerns as influences on food consumption. Journal of the American Dietetic Association, 98(10), 1118–1126. https://doi.org/10.1016/S0002-8223(98)00260-0

Johnson, R., Williams, T., & Carter, L. (2019). Exploring consumer perceptions of baby food safety: A qualitative study. BMC Public Health, 19(1), 1123. https://doi.org/10.1186/s12889-019-7456-2

Jones, R., Miller, S., & Thompson, P. (2017). Regulatory compliance in developing countries: Multinational and domestic firm strategies. Academy of Management Journal, 60(2), 839–864. https://doi.org/10.5465/amj.2015.0723

Kasapila, W., & Shawa, P. (2011). Use and understanding of nutrition labels among consumers in Lilongwe (Malawi). African Journal of Food, Agriculture, Nutrition and Development, 11(5), 5171–5186.

Lee, J., Park, S., & Kim, H. (2021). Influence of packaging aesthetics on consumers' product perception and purchase intention in the food industry: A review. Foods, 10(4), 711. https://doi.org/10.3390/foods10040711

Lin, C. T. J., Lee, J. Y., & Yen, S. T. (2004). Do dietary intakes affect search for nutrient information on food labels? Social Science & Medicine, 59(9), 1955–1967. https://doi.org/10.1016/j.socscimed.2004.02.021

Mahgoub, S. E., Lesoli, P. P., & Gobotwang, K. (2007). Awareness and use of nutrition information on food packages among consumers in Maseru (Lesotho). African Journal of Food, Agriculture, Nutrition and Development.

Nielsen, S. S. (2015). Food analysis (5th ed.). Springer.

Osei, J., & Mensah, K. A. (2020). Capacity constraints and regulatory compliance among local food manufacturers in Ghana. Food Control, 110, 106987. https://doi.org/10.1016/j.foodcont.2019.106987

Osei, J., Boateng, V., & Appiah, R. (2018). Compliance of food labels of imported packaged foods with food labelling regulations in Ghana. Food Science and Quality Management, 77, 19–25.

Schmidt, D. B., & Loving, L. (2011). Tips for effectively communicating with consumers on the role of technology in food production. Food Science and Technology, 25(3).

Smith, E., & Jones, P. (2018). Hygiene practices in small food retail stores: An exploratory study of knowledge, attitude and practices in Chennai, India. Food Control, 94, 345–352. https://doi.org/10.1016/j.foodcont.2018.07.012

Smith, L., & Brown, K. (2020). Food allergy labelling and purchasing habits in the United States: A critical review of current research. Current Allergy and Asthma Reports, 20(10), 1–8. https://doi.org/10.1007/s11882-020-00948-7

STROBE Initiative. (2014). Strengthening the reporting of observational studies in

epidemiology (STROBE): Statement and guidelines. https://www.strobe-statement.org

William, E. R., & Caliendo, M. A. (1994). Nutrition principles, issues, and applications. McGraw-Hill.