Literature Review

Consumer understanding and use of food labels in Ghana: A review of the evidence

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Background

Creating a supportive environment can help manage the growing burden of obesity and diet-related non-communicable diseases (DR-NCDs) through informed diet choices. Food labelling is a typical approach that helps consumers make informed choices when shopping. However, studies on the understanding and use of food labels by consumers in Ghana are limited. To the best of our knowledge, it is the first review to assess the consumer understanding and use of food labels in Ghana.

Methods

This scoping review was conducted up to the end of December 2021 and included both published and unpublished literature on consumer understanding and use of food labels in Ghana.

Results

Eight (8) studies were identified. All, except two, assessed self-reported understanding and use of food labels. Although self-reported understanding of food labels was high, actual understanding through objective measurements was low. The study sheds light on the drivers and challenges of the consumer's use of labels, both of which tend to relate to practical issues (examples include health or religious issues in the former case and time constraints in the latter).

Conclusions

The Government of Ghana and the food industry need to explore new ways to improve consumer understanding of food labels and how they are used.

BACKGROUND

The current worldwide mortality from DR-NCDs is unacceptably high; NCDs account for 71% of all deaths, and three quarters of these deaths occur in low and middle-income countries (WHO 2021). Increased consumption of inexpensive, high-energy, and low-nutrient foods (often referred to as ultra-processed foods, typically containing high levels of sugar, salt, and/or saturated fat) is the driving force behind the rise in NCD and related deaths (Mandle et al. 2015). In response to the increasing burden of NCDs, relevant stakeholders are creating a supportive food environment through policy to influence healthy food choices and/or the food industry to improve the health of food products (Rayner et al. 2013).

Food labelling is an example of a population-based approach that influences healthy food choices at purchase, particularly pre-packaged foods (Cowburn and Stockley 2005). The Codex Alimentarius Commission (Codex) defines food labelling as any written, printed, or visual material present on the label that accompanies or is displayed near the food, including the promotion of its sale or disposal (WHO and FAO 2018). In most jurisdictions, some elements of food labelling, such as the list of ingredients, expiration date, etc. are mandatory; other elements are left to the discretion of food manufacturers or retailers (Rayner et al. 2013). Food labelling helps consumers to make informed food-purchasing decisions and provides consumers with a degree of protection: they have the right to know the contents of the food they buy, as they do not know the country

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of origin and the safety of the food (Cowburn and Stockley 2005).

Ghana has a robust food labelling law that began during the colonial era and has gradually evolved over the past 12 decades, with occasional bursts of legislative intensity (Buckingham 2003). In addition to restricting the marketing of breast milk substitutes, the provision of ingredient lists or nutritional declarations is one of the most highly rated measures of government food environmental policy in Ghana (Laar et al. 2020). This suggests that food labelling is a priority action to create a supportive food environment in Ghana. However, the implementation of food labelling alone can offer only limited success in improving the health of broad population groups unless it is presented in a way that consumers can understand and use (Cowburn and Stockley 2005).

In practice, food labels tend to be the only source of information available to consumers at the point of purchase. Therefore, it is important that they can use this information to make healthy food choices. This is particularly important given that large commercial industries have polluted the health discourse by framing health issues in ways that skip potential liabilities and protect brand reputation (Maani et al. 2022). Assessments of consumer understanding and the use of food labels to support government action in Ghana are limited. This review aimed to synthesize evidence of consumer understanding and use of food labelling in healthy diet choices in Ghana.

METHODS

SEARCH STRATEGY

The review searched for peer-reviewed published articles and unpublished literature on consumer understanding and the use of food labels in Ghana. As part of a broader review, we conducted a structured literature review up to the end of December 2021. The searches were carried out in three electronic databases and bibliographies of relevant publications, as well as relevant websites. Food labelling has been defined as any field of information on packs. The databases searched were Google Scholar (the first 100 results), PubMed, and Science Direct. Websites searched included the Ghana Food and Drugs (FDA) Board, the Ghana Ministry of Health (MOH), the Ghana Health Service (GHS) and the World Health Organization (WHO). Searches were conducted using either a logic grid of or separate key terms such as food labelling, nutritional labelling, product labelling, diet, health, consumer, customer, stakeholder, participant, behaviour, perception, awareness, understanding, attitude, health education, public health, public opinion, use, and Ghana.

DATA EXTRACTION

An initial screening of the titles and abstracts of the papers was performed by two authors (MYK & HAKA) to include only relevant publications using a data extraction tool developed by lead authors (see Table 1). After the first screening, the reference lists of included studies were also

Table 1. Data extraction guide of eligible studies/ reports

Title of publication	
Is publication in English?	Yes/No
Is country of origin Ghana?	Yes/No
Region of study if origin is Ghana	
Is publication about food label and use?	Yes/No
Does publication include, brand names, label design and health claims?	Yes/No
Year of publication	
Type of publication (empirical research, institutional policies/reports, etc)	
Study aim	
Design	
Sampling	
Data collection procedures	
Data analysis	
Main findings of the study	
Limitations stated by author(s)	
Suggestions made by author(s) for future research and policy	

checked for relevant articles. Full-text articles were obtained for further evaluation if the title and abstract could not be rejected. All studies on consumer understanding and use of food labelling in Ghana were eligible for inclusion. We excluded brand names and package design of research articles. Only English literature works (published & unpublished) as well as qualitative, quantitative, and mixed methods studies were all eligible for inclusion in the review. Additionally, because Google Scholar search often returns broad search results of decreasing relevance, our review was limited to the first 100 results.

RESULTS

The initial search yielded 294 results. Of these, 187 appeared to meet the inclusion criteria. After examining the title and abstract of the articles, 34 were selected for full article retrieval. After reviewing the full-text articles, 26 were excluded because they did not meet the inclusion criteria. The remaining 8 articles were used for the final review. The articles used were from Greater Accra (n=2), Volta Region (n=1), Ashanti Region (n=1), Eastern (n=1), Brong-Ahafo (n=1) and Northern Region (n = 1), as well a national study among tertiary education students. All eight were cross-sectional in design and most participants were conveniently sampled. All, except two, assessed self-reported understanding and use of food labels. Our results show limited research on the understanding and use of food labels by consumers in Ghana

CONSUMER UNDERSTANDING OF FOOD LABELS

Consumer understanding of food labels ranged from high to low in both self-reported and objective measurements. Eight studies (self-reports and objective assessments) reported on the consumer understanding of food labels in Ghana (Aidoo 2016; A. Aryee 2013; P. A. Aryee et al. 2019; Azila-gbettor and Adigbo 2013; Darkwa 2014; Madilo et al. 2020; Osei, Lawer, and Aidoo 2012; Sarkodie and Boakye-kessie 2017). Of these, six were self-reported studies (Aidoo 2016; A. Aryee 2013; P. A. Aryee et al. 2019; Azila-gbettor and Adigbo 2013; Osei, Lawer, and Aidoo 2012; Sarkodie and Boakye-kessie 2017), while the remaining two objectively assessed consumer understanding of food labels in Ghana (Darkwa 2014; Madilo et al. 2020). Of the self-reported studies, three reported a high level of understanding (P. A. Aryee et al. 2019; Azila-gbettor and Adigbo 2013; Osei, Lawer, and Aidoo 2012), while the remaining two reported moderate to low understanding of food labels (Aidoo 2016; A. Aryee 2013). Self-reported prevalence of consumer understanding in Ghana was 93.5% in Kumasi (Osei, Lawer, and Aidoo 2012), 79.5% in Ho (Azila-gbettor and Adigbo 2013) and 66.7 % in Tamale (P. A. Aryee et al. 2019). In Accra, 39.2% scored low in understanding of food label information, 55.8% medium, and 5% high (Aidoo 2016). In another study in Accra, 58.3%, 22.8%, and 18.9% of consumers rated their understanding of food labels moderate, high, and low, respectively (A. Aryee 2013).

Studies that objectively assessed consumer understanding of food labels found low rates of actual understanding. When consumers in Koforidua were asked what 26% RDA (recommended daily allowance) of vitamin A per serving on a food label meant, only 22% answered correctly (Darkwa 2014) and in a national study among tertiary students who were given a sample food label to interpret, only 16.5% got it right (Madilo et al. 2020).

CONSUMER USE OF FOOD LABELS

All eight studies assessed consumer use of labels before purchasing packaged food using self-reported measures (Aidoo 2016; A. Aryee 2013; P. A. Aryee et al. 2019; Azila-gbettor and Adigbo 2013; Darkwa 2014; Madilo et al. 2020; Osei, Lawer, and Aidoo 2012; Sarkodie and Boakye-kessie 2017). Consumer use of food labels ranged from high to moderate: 90% in Accra (Aidoo 2016); 75% in another Accra study (A. Aryee 2013); 95.8% in Tamale (P. A. Aryee et al. 2019); 83% in Ho study (Azila-gbettor and Adigbo 2013); 75% in Koforidua (Darkwa 2014) ; 79.6% in Kumasi (Osei, Lawer, and Aidoo 2012); and 91.7% in a national study (Madilo et al. 2020).

Regarding whether food labels influence consumers' purchasing decisions, the results were mixed: 20.8% look at the label in Accra (Aidoo 2016) while 100% reportedly used the label in Ho (Azila-gbettor and Adigbo 2013). Another study in Kumasi reported increased chances of influence in consumer purchasing decisions (Osei, Lawer, and Aidoo 2012), while a low to average impact was reported in Koforidua (Darkwa 2014).

Additionally, when respondents were asked about the frequency of use of food labels, the responses varied widely: about 52% said they do so 'always' in Tamale (P. A. Aryee et al. 2019), 35.8% 'always' use the label in Accra (Aidoo 2016), 49.3% reported regular use in Koforidua (Darkwa 2014) and a national study among tertiary students reported that 31.3% use labels 'very often' (Madilo et al. 2020). When purchasing a food product for the first time, only 37.2% used the label in Kumasi (Osei, Lawer, and Aidoo 2012).

PREDICTORS OF FOOD LABEL USE IN GHANA

Several socio-demographic and behavioural factors were found to be associated with the use of food labels in Ghana. Age, occupation, level of education, employment status, income, and marital status were positively associated with food label use (A. Aryee 2013; P. A. Aryee et al. 2019; Osei, Lawer, and Aidoo 2012).. Other common factors reported in the studies that prompted consumers to use food labels were religious beliefs, food allergies, advertising, health claims, nutritional value, price, expiration date, use directions, storage information, and intolerance to certain foods. The reasons consumers gave for not using food labels were technical/scientific language, haste, small font sizes, a foreign language other than English, and time constraints (P. A. Aryee et al. 2019; Madilo et al. 2020).

DISCUSSION

We found limited research on the understanding and use of food labels by consumers in Ghana. This may be a reflection of the relative lack of importance, publication and research funding priorities researchers in Ghana places on food label research as an additional measure towards addressing DR-NCDs. Most studies were self-reported, which is similar to the findings in Europe (Cowburn and Stockley 2005). Our findings show a high level of self-reported understanding of food labels. Objective measurement suggests understanding may actually be limited. While this is based on only two studies in Ghana, reviews in other parts of the world have reported similar findings (Cowburn and Stockley 2005; Mandle et al. 2015; Grunert and Wills 2007). The high level of self-reported understanding of food labels may be due to social desirability bias by consumers. This suggests that there may be a gap in understanding of food labels among consumers, and therefore requiring industry actors to design labels differently.

Additionally, our research showed a high level of self-reported use of food labels by consumers, which has been corroborated by a review in the European region, that the prevalence of self-reported label use was high among the general population (Campos, Doxey, and Hammond 2011). Our review further revealed wide discrepancies in the frequency of label use in Ghana. Generally, the frequency of use ranged from low to medium, which suggests that less than half of Ghanaian consumer population of pre-packaged food choices may not be based on the labels. In contrast, a UK study found that high percentage (87.5%) of

consumers identify the healthiest product using food labels (Sharf et al. 2012).

The sociodemographic characteristics of food label users in Ghana are similar to the findings of other reviews elsewhere. Our review found that age, occupation, level of education, employment status, income, and marital status were positively associated with food label use (P. A. Aryee et al. 2019; Osei, Lawer, and Aidoo 2012). Similarly, Donga and Partel in their literature review of factors influencing consumer use of food labels in India found that education, income, and marital status were positively associated with food label use (Donga and Patel 2018). Another recent review in India found that age, education, and income had a positive influence on use of food labels in making purchasing decisions (Shireen et al. 2022). However, another study in the USA reported mixed findings. While age and income did not have any effect on food label use, education was positively associated with label use (Drichoutis, Lazaridis, and Nayga 2005). The similarity in review findings may be due to the similarity in the study populations, study settings, and the socio-demographic features and behavioural factors investigated.

KNOWLEDGE GAPS IDENTIFIED

The results show that research on consumer understanding and use of food labels in Ghana are limited, and except for one study, which was a national study (Madilo et al. 2020), the rest were conducted in geographically limited areas. Further exploratory studies, particularly national studies, are needed to better understand how consumers understand and use food labels to design and implement local intervention programs aimed at improving the shopping environment and ultimately improving diets and reducing the prevalence of DR-NCDs. In addition, since most studies used self-reported assessment techniques, more objective measures such as in-store observations are required.

LIMITATIONS OF THE STUDY

As a scoping review, this study was subject to several limitations. The searches were carried out in only three databases, which could possibly limit the retrieval of all eligible studies. Our search in Google Scholar was limited to the first 100 items, which could potentially leave out eligible studies. Additionally, new evidence may have emerged since 2021 aside the fact that our methods did not apply any criteria to determine the quality of the studies.

CONCLUSIONS

To the best of our knowledge, it is the first review to assess the consumer understanding and use of food labels in Ghana. Although the review found limited studies on consumer understanding and use of food labels in Ghana, it provides some guidance for possible directions for further food label research in Ghana.

Future studies should deploy more objective assessment techniques such as in-store observations to elucidate consumers' actual use and understanding and expand investigations to cover food manufacturing industry actors who influence and shape food label policies and trends in Ghana. The government of Ghana and the food industry need to explore new ways of improving understanding of food labels and use in making a healthy choice among consumers. For example, abbreviations such as RDA could be defined. The possibility of using color coding (green for those meeting certain criteria for healthy foods, red for those too high in unhealthy ingredients, and yellow for in between) could be tested, as is being done currently in several other countries (Cecchini and Warin 2016; Galtier et al. 2021).

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